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THE AMERICAN YEAR BOOK

A Record of Events and Progress
YEAR 1932

EDITOR

ALBERT BUSHNELL HART, LL.D.

ASSOCIATE EDITOR

WILLIAM M. SCHUYLER

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PREFACE

In sending out this eighteenth annual volume of *THE AMERICAN YEAR BOOK*, the editors have kept in mind the combination of private activity with governmental organization and functions which has been the basis of the work. From the beginning it has been a principal to recognize that the record of the accomplishments of a twelvemonth in the United States must deal with both of these elements, for our government is very closely connected with private and corporate activities. In the trying twelvemonth of 1932, that relation of government to business and finance has been the subject of difficulty and controversy. In the coming twelvemonth and for years thereafter, historians and financiers may consult this record as an aid to make clear the confused business and financial transactions of 1932.

It has always been a part of the plan of *THE AMERICAN YEAR BOOK* to record achievements and progress, not only in those activities which are the field of public and private organization, but in the sciences and the humanities. Significant acts of Congress, significant crises in business, and significant discoveries in the fields of science and the arts, are all a part of the experience of the American people, and are therefore included in the plan of action of this annual publication.

The motive force of the *YEAR BOOK* is the aggregation of constituent societies gathered together with their representatives in a supervisory board, who take responsibility for the various topical divisions of this volume. The close association of men of weight in their various fields preserves the balance of interests and gives the assurance of these experts that competent contributions of experience and judgment shall be found. The list of forty-five associated national societies which cooperate in the work will be found a few pages farther on, and through that organization upwards of two hundred individuals year by year become direct contributors to the *YEAR BOOK* within their spheres of learning and experience.

The year 1932 has not been one easy to understand, for it has brought anxiety and distress and lack of confidence. Many of the contributions take account of the financial and social crises. The sum of their discussions of the effect of the hard times upon their professions and interests will be a helpful contribution to the sound judgment of actual conditions which must be the basis of recovery.

A feature of the book is the references, with mail addresses to cognate societies and research institutions, which appear at the end of each of twenty-six divisions of the work. Great pains have been taken to keep these lists up to date, so that the searcher for information or material in almost any field of national activity may write direct to these scientific organizations for information or for suggestions upon current questions. The *YEAR BOOK* thus aims to be an intermediary between the searcher and the expert through the numerous historical, governmental, educational and scientific bodies which are always ready to aid the searcher.

Since the reorganization of the *YEAR BOOK* in 1925, its publication has been made possible by the cordial cooperation of Mr. Adolph S. Ochs of *The New York Times*, who has added to his many services to the American people an interest in the *YEAR BOOK* as a summary of progress and a permanent record of activities which interest and occupy the American mind.

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A. H. Jansson: COMMERCIAL MARINE ENGINEERING.

Editor, *Marine Review*, Cleveland.

Jens P. Jensen, Ph.D.: LAND AND PROPERTY TAXES, CORPORATION AND BANK TAXES.

Professor of Economics, University of Kansas.

W. L. G. Joerg: CARTOGRAPHY.

Research Editor, American Geographical Society; Secretary, United States National Committee of the International Geographical Union; Member of the Executive Committee, Division of Geology and Geography, National Research Council.

F. W. Kaufman, Ph.D.: GERMAN LANGUAGE AND LITERATURE.

Assistant Professor of German, Smith College.

John B. Kelly: ROMAN CATHOLIC CHURCH.

Spiritual Director, Catholic Writers' Guild of America, Inc., New York.

J. Alexander Kerns: INDO-EUROPEAN LINGUISTICS.

Department of Classics, New York University.

Milo S. Ketchum, C. E., D.Sc.: STRUCTURAL ENGINEERING.

Director, Engineering Experiment Station, and Dean of the College of Engineering, University of Illinois.

James E. Kindred, Ph.D.: VERTEBRATE ZOOLOGY.

Associate Professor of Histology and Embryology, University of Virginia.

Sidney D. Kirkpatrick: INDUSTRIAL CHEMISTRY AND CHEMICAL ENGINEERING.

Editor, *Chemical and Metallurgical Engineering*.

Arthur J. Klein, Ph.D., LL.D.: COLLEGIATE EDUCATION.

Department of School Administration, Ohio State University, Columbus, O.

Paul O. Komora: MENTAL HYGIENE.

Associate Secretary, National Committee for Mental Hygiene, New York.

CONTRIBUTORS

- Roland L. Kramer, Ph.D.:** FOREIGN TRADE.
Professor of Commerce and Transportation, University of Pennsylvania.
- H. M. Lammers:** GUAM AND AMERICAN SAMOA.
Commander, U. S. N.; Officer in Charge, Office of Island Governments.
- Harry H. Laughlin, B.S., M.S., D.Sc.:** RACE CONDITIONS IN THE UNITED STATES.
Assistant Director, Department of Genetics, Carnegie Institution of Washington, Cold Spring Harbor, N. Y.
- L. Don Leet, B.A., Ph.D.:** EARTHQUAKES AND VOLCANOES.
Seismologist in Charge, Harvard Seismograph Station.
- Ernest R. Lilley, Sc.D.:** PETROLEUM.
Professor of Economic Geology, New York University.
- Charles E. Locke, B.S.:** MINING AND ORE DRESSING.
Professor of Mining Engineering and Ore Dressing, Massachusetts Institute of Technology; Member, American Institute of Mining Engineers.
- Frederic B. Loomis, Ph.D.:** VERTEBRATE PALEONTOLOGY.
Professor of Geology, Amherst College.
- Albert Howe Lybyer, B.A., Ph.D.:** ORIENTAL AND NEAR EASTERN RELATIONS.
Professor of History, University of Illinois.
- Thomas H. MacDonald, B.C.D.:** HIGHWAYS.
Chief, Bureau of Public Roads, Department of Agriculture.
- R. V. D. Magoffin, Ph.D., LL.D.:** ARCHAEOLOGICAL DISCOVERY.
President, Archaeological Institute of America; Professor and Head, Department of Classics, New York University; Member, American Historical Association, American Philological Association.
- Roy Malcom, M.A., Ph.D.:** SPHERES OF AMERICAN INFLUENCE.
Professor of Political Science, University of Southern California.
- H. A. Marmer, M.S.:** OCEANOGRAPHY.
Assistant Chief, Division of Tides and Currents; U. S. Coast and Geodetic Survey.
- Arthur R. Marsh, B.A.:** GOVERNMENTAL REGULATION OF COMMODITY EXCHANGES.
Member, New York Cotton Exchange; President and Treasurer, The Chronicle Company.
- Kirtley F. Mather, Sc.D., Ph.D.:** DYNAMIC AND STRUCTURAL GEOLOGY.
Professor of Geology; Chairman, Department of Geology and Geography, Harvard University; Geologist, U. S. Geological Survey; Fellow, Royal Geographical Society.
- John M. Mathews, B.A., Ph.D.:** NATIONAL AND INTERSTATE RELATIONS OF STATES; STATE LEGISLATURES AND LEGISLATION; UNITED STATES AND WORLD AFFAIRS.
Professor of Political Science, University of Illinois; Member, American Political Science Association, American Society of International Law.
- Mildred E. Mathias, B.A., M.S., Ph.D.:** BOTANY.
Botanist and writer, Pittsburgh.
- Walter W. McLaren, M.A., Ph.D.:** INSTITUTE OF POLITICS.
Executive Secretary, Institute of Politics; Brough Professor of Economics, Williams College.

CONTRIBUTORS

Bennet Mead: CRIME CONDITIONS AND TREATMENT.

Statistician, Office of the Superintendent of Prisons, Department of Justice.

Frank L. Meleney, M.D.: SURGERY.

Department of Surgery, Presbyterian Hospital, Columbia University.

A. James Miller, M.D.: PATHOLOGY.

Professor of Pathology and Bacteriology, School of Medicine, University of Louisville.

John A. Miller, Ph.B.: COMMUNITY TRANSIT.

Managing Editor, *Transit Journal*; Member, American Railway Association; Associate Member, American Society of Civil Engineers, New York.

John R. Mohler, V.M.D., D.Sc.: DISEASE AND PESTS OF ANIMALS.

Chief, Bureau of Animal Industry, Department of Agriculture; Member, Society of American Bacteriologists, American Veterinary Medical Association.

W. A. Moffett: NAVAL AERONAUTICS.

Rear Admiral, U. S. N.; Chief, Bureau of Aeronautics, Navy Department.

Charles C. Moore: PUBLIC LANDS.

Commissioner of the General Land Office, Department of the Interior.

Howard Britton Morris, M.A.: FEDERAL JUDICIAL PROSECUTIONS AND DECISIONS.

Department of History, New York University.

T. F. Murphy, M.D.: VITAL STATISTICS.

Chief Statistician for Vital Statistics, U. S. Bureau of the Census, Department of Commerce.

Alonzo F. Myers: EDUCATION FOR THE PROFESSIONS.

Professor, School of Education, New York University.

Denys P. Myers: UNITED STATES TREATIES.

Director of Research, World Peace Foundation, Boston.

Marcus Nadler: FOREIGN EXCHANGE.

Associate Professor, Graduate School of Business Administration, New York University.

Leslie E. Neville: PROGRESS IN AERONAUTICS.

Managing Editor, *Aviation*.

J. D. Nevius, B.Sc.: ADMINISTRATION OF THE TARIFF.

General Counsel, Bureau of Customs, Treasury Department.

Mabel Newcomer, Ph.D.: INCOME TAXES.

Professor of Economics, Vassar College.

John Nolen, Jr.: METROPOLITAN AND REGIONAL PLANNING.

City Planner, National Capital Park and Planning Commission, Washington, D. C.

William F. Notz, B.A., M.A., Ph.D.: CONTROL OF PRODUCTION.

Dean, School of Foreign Service, Georgetown University.

Robert Lincoln O'Brien: UNITED STATES TARIFF COMMISSION.

Chairman, United States Tariff Commission.

Frederic A. Ogg, Ph.D., D.D.: FEDERAL LEGISLATION.

Professor of Political Science, University of Wisconsin.

H. M. Olmsted: MUNICIPAL OWNERSHIP OF UTILITIES; PUBLIC OWNERSHIP OF WATER POWER; ZONING.

Associate Editor, *The American City*, New York.

CONTRIBUTORS

- Nils A. Olsen:** AGRICULTURAL MARKETING.
Chief, Bureau of Agricultural Economics, Department of Agriculture.
- Francis LeJau Parker:** PUERTO RICO, PHILIPPINE ISLANDS.
Brigadier General, U. S. A.; Chief, Bureau of Insular Affairs, War Department.
- Carl E. Parry:** FEDERAL RESERVE SYSTEM.
Assistant Director of Research and Statistics, Federal Reserve Board.
- Roy V. Peel:** PRESIDENTIAL ELECTION OF 1932.
Professor of Government, New York University.
- Jean B. Pinney:** SOCIAL HYGIENE.
Associate Director, American Social Hygiene Association, New York.
- Elizabeth T. Platt, B.S.:** TRAVEL.
Assistant Librarian, American Geographical Society.
- Norman Plummer, M.D.:** MEDICINE.
Instructor in Clinical Medicine, Cornell University Medical School, New York.
- Thomas Reed Powell, LL.B., Ph.D., LL.D.:** SUPREME COURT AND CONSTITUTIONAL LAW.
Langdell Professor of Law, Harvard Law School.
- Lewis Radcliffe:** FISHERIES.
Deputy Commissioner, Bureau of Fisheries, Department of Commerce.
- W. H. Rastall:** AMERICAN MACHINERY.
Chief, Industrial Machinery Division, Bureau of Foreign and Domestic Commerce, Department of Commerce.
- A. Duncan Reid:** CASUALTY AND MISCELLANEOUS INSURANCE.
President, Globe Indemnity Company, Newark, N. J.
- Martin L. Reymert, Ph.D.:** MENTAL TESTS.
Director, Mooseheart Laboratory for Child Research, Mooseheart, Ill.
- Calvin W. Rice, B.S., D. Eng.:** MECHANICAL ENGINEERING.
Secretary, American Society of Mechanical Engineers; Fellow, American Institute of Electrical Engineers; Member, Institute of Electrical Engineers (London); Honorary Member, Koninklijk Institut Van Ingenieure.
- Bernard G. Richards:** JUDAISM AND JEWISH COMMUNAL AFFAIRS.
Executive Secretary, American Jewish Congress, New York.
- L. S. Richardson:** DAIRY INDUSTRY.
Assistant to the Chief of Dairy Information, Bureau of Dairy Industry, Department of Agriculture.
- A. A. Roback, M.A., Ph.D.:** PHILOSOPHY.
University Extension Lecturer, Commonwealth of Massachusetts.
- John C. Rolfe, B.A., M.A., Ph.D.:** LATIN LITERATURE.
Professor of Latin Language and Literature, University of Pennsylvania; Member, American Philological Association.
- Beatrice Sawyer Rossell:** LIBRARIES.
Editor, *Bulletin of the American Library Association*.
- David J. Saposs:** LABOR IN POLITICS.
Professor of Trade Unionism, Brookwood Labor College, Katonah, N. Y.
- William M. Schuyler:** FEDERAL ADMINISTRATIVE ORGANIZATION; PERSONNEL OF THE JUDICIARY.
Associate Editor, THE AMERICAN YEAR BOOK.

CONTRIBUTORS

- L. Seth Schnitman, Ph.B., LL.B.:** MANUFACTURES AND TRANSPORTATION.
Chief Statistician, F. W. Dodge Corporation, New York.
- E. W. Sheets, B.Sc., M.S.:** LIVESTOCK AND MEATS.
Chief, Animal Husbandry Division, Bureau of Animal Industry, Department of Agriculture.
- Preston King Sheldon:** INTERDENOMINATIONAL ACTIVITIES.
Writer on religious topics.
- Lloyd M. Short, Ph.D.:** FEDERAL ADMINISTRATIVE COMMISSIONS.
Professor of Political Science and Public Law, University of Missouri.
- Flavel Shurtleff:** CITY PLANNING.
Secretary, National Conference on City Planning, New York.
- Francis H. Sisson, B.A., LL.D.:** PUBLIC DEBT OF THE UNITED STATES.
Vice-President, Guaranty Trust Company of New York; Member, American Economic Association, Academy of Political Science in the City of New York; President, American Bankers Association.
- Bancroft Walker Sitterly, B.A., M.A., Ph.D.:** ASTRONOMY.
Assistant Professor of Astronomy, Wesleyan University; Member, American Astronomical Society, American Association for the Advancement of Science; Fellow, Royal Astronomical Society.
- W. W. Skinner, M.S., Sc.D.:** AGRICULTURAL CHEMISTRY.
Assistant Chief, Chemical and Technological Research, Bureau of Chemistry and Soils, Department of Agriculture.
- Sumner H. Slichter, Ph.D.:** EMPLOYMENT.
Professor of Business Economics, Harvard Graduate School of Business Administration.
- Paul J. Smith, B.Sc.:** MATERIALS OF ENGINEERING AND CONSTRUCTION.
Technical Assistant, American Society for Testing Materials, Philadelphia.
- Peter F. Snyder:** IMMIGRATION AND EMIGRATION.
Assistant to the Secretary of Labor.
- Robert K. Speer, B.A., M.A., Ph.D.:** ELEMENTARY EDUCATION.
Professor of Elementary Education and Chairman of the Elementary Education Department, School of Education, New York University.
- Gilbert T. Stephenson, LL.B., M.A.:** TRUST BANKING.
President, Trust Company Division, American Bankers Association; Vice-President, Equitable Trust Company, Wilmington, Del.
- Neil E. Stevens, Ph.D.:** DISEASES OF PLANTS.
Senior Pathologist, Plant Disease Survey, Bureau of Plant Industry, Department of Agriculture.
- Percy G. Stiles, M.D.:** PHYSIOLOGY.
Professor of Physiology, Harvard University Medical School.
- Carl W. Stocks:** MOTOR BUS SERVICE.
Editor, *Bus Transportation*, New York.
- William T. Stone:** INTERNATIONAL CONFERENCES; THE PEACE MOVEMENT.
Washington Representative of the Foreign Policy Association.
- Helen M. Strong, Ph.D.:** ECONOMIC GEOGRAPHY.
Member of Association of American Geographers; Fellow of the American Geographical Society, New York; Fellow, Royal Geographical Society, London.

CONTRIBUTORS

- Wendell M. Strong, Ph.D., LL.B.:** LIFE INSURANCE.
Associate Actuary, Mutual Life Insurance Company of New York;
President, Actuarial Society of New York.
- Graham H. Stuart, Ph.D.:** LATIN-AMERICAN RELATIONS.
Professor of Political Science, Stanford University.
- Arthur Sweetser, B.A., M.A.:** LEAGUE OF NATIONS.
Member, Secretariat of the League of Nations.
- Hugh S. Taylor, Ph.D.:** INORGANIC AND PHYSICAL CHEMISTRY.
David B. Jones Professor of Chemistry, Princeton University.
- William A. Taylor, V.S., D.Sc.:** HORTICULTURE.
Chief, Bureau of Plant Industry, Department of Agriculture.
- Robert S. Thomas, B.A., M.A.:** MILITARY PROBLEMS OF THE UNITED STATES;
ORGANIZATION OF THE ARMY; ACCOMPLISHMENT OF ARMY PERSONNEL;
ARMY AERONAUTICS; MILITARY EDUCATION.
Chief Clerk, Historical Section, Army War College, Washington,
D. C.
- Leon E. Truesdell, Ph.D.:** POPULATION STATISTICS.
Chief Statistician for Population, Bureau of the Census, Department
of Commerce.
- F. G. Tucker, Ph.D.:** PHYSICS.
Professor of Physics, Oberlin College, Oberlin, O.
- Scott Turner:** COPPER.
Director, U. S. Bureau of Mines, Department of Commerce.
- Burton M. Varney, Ph.D.:** METEOROLOGY AND CLIMATOLOGY.
Associate Professor of Geography, University of California at Los
Angeles.
- Paul W. Wager, Ph.D.:** COUNTY AND RURAL GOVERNMENT.
Associate Professor of Rural Social Economics, University of North
Carolina.
- C. Laurence Warwick, B.Sc., C.E.:** MATERIALS OF ENGINEERING AND CON-
STRUCTION.
Secretary-Treasurer, American Society for Testing Materials, Phila-
delphia.
- W. B. C. Watkins, B.A., B.Litt.:** CRITICISM AND BELLES LETTRES.
Instructor of English, Princeton University.
- Herman C. Weber:** PROTESTANT CHURCH ACTIVITIES.
Editor, *Year Book of the Churches*; Director, Canvass Department,
General Council, Presbyterian Church, U. S. A., New York.
- Walter West:** ORGANIZED SOCIAL WORK.
Executive Secretary, American Association of Social Workers.
- Warren Reed West, Ph.D.:** DISTRICT OF COLUMBIA.
Associate Professor, Department of Political Science, The George
Washington University.
- Joseph Henry Wheat:** FEDERAL SURVEYS AND MAPS.
Secretary, Federal Board of Surveys and Maps, Department of the
Interior.
- G. Lloyd Wilson, B.A., M.A., M.B.A., LL.B., Ph.D.:** RAILROAD TRAFFIC AND
EARNINGS.
Professor of Commerce and Transportation, University of Penn-
sylvania.
- G. F. Wittig:** ELECTRIC LIGHTING AND POWER.
Statistical Editor, *Electrical World*, New York.

CONTRIBUTORS

Austin M. Wolf: AUTOMOTIVE ENGINEERING.

Automotive Consulting Engineer; Member, Society of Automotive Engineers.

Clinton Rogers Woodruff, B.A., LL.B., Ph.D.: FEDERAL CIVIL SERVICE; LAW REFORM; CITY POLITICS; TYPES OF MUNICIPAL GOVERNMENT; MUNICIPAL FUNCTIONS; MUNICIPAL MISCELLANIES.

Member, Pennsylvania Bar; Honorary Secretary, National Municipal League; Editor *National Municipal Review*; Director of Public Welfare, Philadelphia.

Malcolm O. Young, B.A., B.L.S.: BIOGRAPHY.

Reference Librarian, Princeton University.

Ralph A. Young, Ph.D.: THE EXPORT AND IMPORT BALANCE.

Assistant Professor of Economics, Wharton School of Finance and Commerce, University of Pennsylvania; Social Science Research Fellow, 1930-31.



**THE AMERICAN
YEAR BOOK**



THE AMERICAN YEAR BOOK

A RECORD OF EVENTS AND PROGRESS

PART ONE HISTORICAL

DIVISION I

AMERICAN POLITICAL HISTORY

THE PRESIDENTIAL ELECTION OF 1932

BY ROY V. PEEL

PROFESSOR, NEW YORK UNIVERSITY

PRE-CAMPAIGN FACTORS AND INFLUENCES

The Rise of Hoover and Roosevelt.

—The campaign of 1932 actually began about 12 years before the balloting took place. In 1920, Herbert Clark Hoover received some support for both the Republican and Democratic nominations, although Harding finally won the place on the Republican ticket and Cox on the Democratic ticket. Governor Cox's running mate was Franklin Delano Roosevelt, Assistant Secretary of the Navy from New York. Mr. Hoover entered President Harding's Cabinet and remained actively interested in politics thenceforth. Meanwhile, Mr. Roosevelt suffered a physical ailment which removed him temporarily from the field of presidential contenders. His reentry into public life was signalized by his nomination of Governor Alfred E. Smith of New York for the leading place on the Democratic ticket of

1924. Although unsuccessful, he appeared again in the same rôle in 1928 and his efforts were crowned with victory. In the same year, Mr. Roosevelt was himself nominated Governor of New York and elected. Governor Smith was defeated for the office of President, losing to Secretary Hoover.

The Hoover Record in Office.—No sooner was President Hoover installed in office than he yielded to the demand for the calling of a special session of the Seventy-first Congress. In this session, formally convened on April 15 and adjourned Nov. 22, an act was passed establishing a Federal Farm Board, which was given extensive powers pertaining to the problem of agricultural relief. There was protracted debate over the tariff, which was finally enacted late in the following summer. Meanwhile, a period of general depression had been ushered in by the precipitous drop in stock-market prices, which occurred

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late in 1929. The President and his advisors were at first inclined to view the collapse as temporary in character, and issued many reassuring statements in the hope of checking the flight of values. Great reliance was placed upon the new tariff and agricultural laws as well as upon the voluntary cooperation of industrial leaders. None of these agencies was effective, except in a limited area and over short periods. Unemployment increased alarmingly, prices dropped, trading fell off, and capital retired from circulation. The President, under attack from several quarters, brought new forces into play. He was instrumental in organizing several commissions, which were expected to study exhaustively certain assigned problems and to submit recommendations looking to their solution. The most notable of these was the National Commission on Law Observance and Enforcement, known as the "Wickersham Commission," which reported in 1931. Although concerned with the whole question of law enforcement, the report was ignored by the public with the exception of that section dealing with Prohibition. The conclusions of the investigators favored the continuation of the experiment, but it was widely believed that the findings of the Commission warranted the opposite conclusion. Indeed, one of the most extraordinary chapters in political history was written during this period; the scientific procedure of obtaining facts for the guidance of President and Congress was actually attacked as a waste of time and effort. In time, the value of these studies carried out under the auspices of the President will come to be recognized. Apparently, even the Republican spokesmen did not attach any significance to them as campaign material.

Development of the Roosevelt Candidacy. — Meanwhile, Governor Roosevelt, on the defeat of Governor Smith, had assumed control of the Democratic Party. For two years he administered the affairs of the state with energy and wisdom. At the same time, his friends were developing throughout the nation a network of

personal contacts and local clubs never before equalled. At Washington where Governor Smith remained in control of the central machinery of the party, the National Chairman, John J. Raskob, had called to his assistance as Executive Secretary, Jouett Shouse of Missouri, and as director of publicity, Charles Michelson, of New York. These three gentlemen organized, directed and personally operated a skillful campaign of attack on the policies of President Hoover and his associates. So effective were they that, in the fall elections of 1930, 18 Democratic Governors were elected, an increase of 38.9 per cent. In Congress a Republican majority of seven in the Senate was reduced to zero, while in the House the Democrats won 216 seats. As a consequence, the Republican Party was forced to yield the speakership to John N. Garner, of Texas, veteran legislator and caustic critic of the administration. The remaining two years were years of indecision. At one moment, the Democrats would denounce their Republican colleagues, who would retort that they were being thwarted in carrying out the necessary functions of government; at the next moment, the leaders of both parties would pledge their cooperation and mutual assistance. In this dilemma, the citizenry turned anxious eyes toward Albany, where Governor Roosevelt had been reelected by the largest plurality ever amassed by any candidate for the office of Governor of New York. Free from the necessity of "cooperating with the President," the Governor attended strictly to his duties at the state capitol, and occasionally uttered some penetrating comment on the national situation.

THE PRELIMINARY CAMPAIGN

Nursing of Candidates.—The preliminary nursing of candidates began early in 1931. Although Mr. Roosevelt's agents were the most active, Governor Smith, who at first denied that he was actively seeking the nomination, seized every opportunity to emphasize his claim to "the titular leadership of the party." He was soon forced to declare himself in as much

as other contenders were appearing on the horizon. The Scripps-Howard chain of newspapers, repenting their advocacy of President Hoover in 1928, fostered a boom for Newton D. Baker. In Maryland, Governor Ritchie, long regarded as a "favorite son," openly sought the prize. Lesser booms were inaugurated on behalf of Owen D. Young, Melvin A. Traylor, Speaker Garner, Senator J. Hamilton Lewis and Governor White of Ohio. Among the Republicans, no serious aspirant to the nomination appeared outside of the President himself. There was, however, a disposition in some quarters to call for the return of former President Calvin Coolidge. President Hoover's stock had risen considerably because of his judicious handling of the debt moratorium question, but it was doomed to fall again under the impact of renewed economic distress. Naturally, he retained that control over the Republican delegates which the administration in power customarily enjoys, and was thus assured of a favorable vote in the convention.

Preference Primary.—The preliminary campaign of 1932 marked the further decline of the presidential preference primary. Since 1928, one state, Indiana, has repealed its primary law, and another, North Dakota, has emasculated its provisions. In New York, the delegates only are elected. The voters express no preference, except indirectly when candidates for delegate announce their choice for the presidential nomination. In 1932, only eight such delegate-candidates declared their preferences—four Democrats and four Republicans. Consequently, it was never known for certain how the main body of New York's delegates would vote. In Pennsylvania, 60 counties "filed in preference for Governor Roosevelt," but the actual preferences of the elected delegates to the Democratic Convention were never known until shortly before the balloting took place at Chicago. In all, 18 states, Alaska and the District of Columbia employed the preference primary in 1932. On the Democratic side 10 of these states, the territory and the district were claimed for Governor Roosevelt,

the remaining being pledged to Governor Smith and the favorite sons. Although President Hoover did not authorize the use of his name in the primaries, he was entered by his friends and his name was "written in" in several states. His leading competitor, Senator Joseph I. France, of Maryland, claimed 533 delegates, and actually did win the preference primary vote of seven states. Minor contestants were Gen. Jacob Coxey and Representative Louis MacFadden. Although none of the candidates or managers was interested in the preference primaries, they did value a favorable attitude toward them among the caucus—designated delegates, and the instructions by county and state conventions. A weighing of these values prior to the calling of the convention indicated unmistakably the selection of President Hoover and Governor Roosevelt as candidates of their respective parties.

THE CONVENTIONS

Socialist and Communist.—The Socialist convention at Milwaukee renominated its ticket of 1928,—Norman Thomas of New York for President and James H. Maurer of Pennsylvania for Vice-president. Although united on most questions, the party was weakened by a controversy over prohibition and the recognition of Russia. Somewhat later, the quasi-political group known as the League for Independent Political Action met and ratified the choice of the Socialists. The Communists, meeting in Chicago, on May 29, renominated their 1928 presidential candidate, but for Benjamin Gitlow they substituted James Ford, a Negro, as their candidate for Vice-president. The Socialist-Labor party, meeting in New York named Verne Reynolds, their former standard-bearer, for President and John W. Aiken for Vice-president.

Prohibition and Other Tickets.—Tickets were also placed in the field by the Prohibition, Farmer-Labor, Jobless, Liberty and Liberal parties although a number of these candidacies were withdrawn. Of this group the most interesting was William H. "Coin" Harvey, who first achieved

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fame in the days of Bryan with his little pamphlet, "Coin's Financial School," a free silver tract.

Republican.—The Republican convention met in Chicago from June 14 to June 17. Senator France, despite the large number of preference votes cast for him, found himself completely deserted. He was not even permitted to address the convention, and, except for the one incident in which he figured, no one stood in the way of the President's renomination. The only real fight was for the vice-presidential nomination which fell to Charles Curtis after a brief period of indecision. The keynote speech was delivered by Senator Dickinson of Iowa; Representative Snell, of New York, officiated as permanent chairman. In the speeches of these two leaders and in the party platform, ran one refrain; times have been bad but "they might have been worse." An effort was made by Senator Bingham of Connecticut to force the adoption of an outright Eighteenth Amendment repeal plan. It failed despite the support which it received from the non-voting galleries.

Democrat.—The Democrats met two weeks later in the same hall. The Roosevelt forces, ably led by the cool and genial James A. Farley, quietly insisted upon the selection of Senator Walsh as permanent chairman in place of Governor Smith's candidate, Jouett Shouse. They suggested the possibility of breaking down the two-thirds rule, and confidently turned attention to the platform. A last minute attempt by the "Allies" to consolidate the opposition in support of Governor Smith failed. The delegates of California and Texas, pledged to Speaker Garner and committed to the interests of William G. McAdoo, were released at the psychological moment, and Governor Roosevelt was chosen as the party's candidate for the Presidency. Speaker Garner was offered the vice-presidential nomination. He readily accepted. The platform adopted by the Democrats was unlike that of the Republicans in two important respects; it favored direct repeal of the Eighteenth Amendment,

and it was short. There were only 1,548 words in the entire document.

THE CAMPAIGN

Issues.—The issues of the campaign were never very clearly put. The Republican platform, expanded by acceptance speeches and campaign speeches, apparently favored the submission of the prohibition question to popular vote, as did the Democratic platform with the additional recommendation favoring repeal. All parties were apparently in favor of restoration of jobs to the unemployed, maintenance of a sound monetary system, adequate return to capital, prosperity for the farmers and friendly, but not too intimate, relations with foreign nations. Differences concerned methods of achieving these aims. Basically, the only issue was one of philosophies of government. President Hoover adhered to the doctrine of individualism, aid to the powerful and able as a preliminary relief for the distressed, and the relaxation of restrictions on private business. Governor Roosevelt, on the other hand, clearly embraced a collectivist view, demanding fairer distribution of the benefits of government, with an increase of regulation over private business ventures. Mr. Thomas, as usual, urged yet more fundamental changes, with even broader distribution of benefits, and ownership and operation of certain industries rather than ineffective regulation. The prohibition candidate, Representative William Upshaw, was chiefly concerned with the defense of prohibition, while the various other minority candidates recommended drastic changes in the whole political and social order.

Organization.—The Republican campaign was led by the President personally, but general headquarters were established at Chicago under the direction of Everett Sanders as National Chairman. Various sectional headquarters were established, that in the East being located at New York. It was directed by Senator Felix Hebert of Rhode Island. Democratic headquarters were in New York where James A. Farley, in the double rôle

of National Chairman and New York State Chairman, officiated. Assisting him were many leaders skilled in politics. Both major parties organized their national campaigns in about the same fashion, but not to the same degree. The Democratic National organization consisted of eight regional units, each headed by a practical political manager; 20 office units and six special units, such as the foreign language division and the local club division. A list of these units will illustrate the nature of the organization. In separate offices sat the members of the general staff: Colonel Farley, Colonel Howe, Mr. Michelson, Mr. Jackson, and the Governor's secretary. The special units assigned to Labor, Women, Foreign Language Bureau, Colored Division, and the eight regional directors each had a separate office. Other divisions and units scattered about were: clubs, comptroller, editorial, filing, finance, library, mailing, general, messengers, office manager, motion pictures, radio, stage and screen, telegraph, telephone, women speakers, and supplies. In addition to these units there were the state and the various local and auxiliary units, several of which occupied separate quarters.

Finances.—In 1928, campaign expenditures were higher than ever before. A total of six investigating committees industriously gathered facts looking to the correction of abuses incident to these expenditures. Several prosecutions resulted. In all, \$9,433,604 was spent by the Republicans and \$7,152,511 by the Democrats. The latter party found itself early in 1931 greatly in debt to its chairman, a condition which neither he nor the party members relished. Consequently, a movement was inaugurated to raise a "Victory Fund" which enlisted the services and solicited the contributions of all party workers. Partly on account of the depression the Democratic party declared for a campaign of economy. The Republicans followed suit. Only \$4,308,829.58 was spent by both major parties in 1932, of which \$1,638,177.58 was spent by the victorious Democrats.

TACTICS AND STRATEGY OF THE CAMPAIGN

Ordinary tactics of the major parties were changed but little. Both, not to mention the minor parties, distributed millions of small cards, mats, booklets, pictures, posters and the like. The Democrats made extensive use of a "primer" of doggerel verse. The Republicans counted more heavily on advertising in the country journals. The latter party was somewhat more favored by the amount of space devoted to its candidate in the news-reel releases; the former enjoyed the advantage in local radio broadcasts. Seventy-three hours of radio time over the nation-wide "hook-ups" were consumed by the Republicans, 51¼ hours by the Democrats and one hour by the Socialists. The minor parties also used the radio extensively for limited areas as did the candidates for local offices. Doubt was expressed as to the value of this form of publicity. Several broadcasting officials expressed the fear that the use of radio would be discouraged if public questions were permitted further to usurp time belonging to popular entertainers and private advertisers.

Straw Votes.—As usual each party featured ratifications of its selections by prominent persons, bolts from its rivals and predictions. As the *Literary Digest*, Hearst newspaper chain and local newspaper straw ballots began to show an overwhelming trend toward Roosevelt, the Republican party lost interest in these "unofficial predictions" and sought to discount them. Little is yet known as to the propaganda value of such predictions. Unquestionably the majority of the polls were honestly, carefully and interestingly conducted. The party managers, by correcting the averages of the popular polls with estimates supplied by their lieutenants, knew the results in advance. But no one knows yet exactly which purposes are served by neutral predictions. The most significant failure of the polls was the over-estimation of the Thomas vote.

Republican Strategy. — The strategy of the Republican party was

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to insist on the retention of President Hoover on the grounds that he was not responsible for the depression, but having experienced it, knew how to combat it. The chief strategical blunders of the Republican party were their slowness in getting into action, their boomerang policy of deflating the government and their use of statistics. Since the latter instrument had been used with no effect in fighting the depression, it had lost its appeal. The Democrats, pointing to the Republican record of disappointments and broken promises, demanded a change.

Personalities.—The personality of Governor Roosevelt proved a great asset to the Democrats. Courageous in the face of serious physical disability, amiable, honest and aristocratic, the Democratic candidate, won friends among every class. Even Governor Smith, after sulking in his tent for several months, capitulated to his successor and sallied forth into New England to rally the wavering forces of the East. President Hoover, stripped of his legendary garments of superhuman power, became a pitiable figure of inadequacy. It is one of the tragedies of history that so fine a mind and so noble a resolution should thus be lost to the country in its hour of need.

RESULTS AND BY-PRODUCTS OF THE ELECTION

Presidential Vote.—The victory of Roosevelt over Hoover was nearly as great as that of Hoover over Smith four years earlier. President Hoover with 10,921,305 popular votes, carried only six states; Roosevelt with 14,928,017 popular votes carried 42 states. The total vote of the minor parties was but 1,007,941.

Senate.—There was a complete overturn in Congress. Twenty-eight Democratic Senators were elected as a result of which the party distribution in the upper chamber stood: Democratic, 59; Republican, 36, and Farmer-Labor, 1.

The House of Representatives, already in Democratic hands, stood: Democratic, 313; Republican, 117, and Farmer-Labor, 5. This was a gain

of 93 for the Democrats and four for the Farmer-Labor party.

In the states, the Democrats won control of 32 state legislatures, a gain of 17 over 1931, and elected 29 governors, giving them a total of 38, a gain of 11 over the previous year. The Farmer-Labor party retained local control of Minnesota while in Wisconsin, where the LaFollette Progressive faction was decisively beaten by the stand-pat Republican faction in the primaries, a full slate of Democratic candidates, complete except for one state office, was elected. This election was the first national contest held under the new 1930 congressional reapportionment. Several states lost votes in the electoral college, but this had no effect on the vote for President. On the other hand, since New York, Minnesota and Missouri had failed to reapportion properly their seats in Congress, the elections to that body were considerably influenced. New York Democrats won the two Congressmen-at-large whose places might conceivably have been won by the Republicans, and, in Missouri, the entire Democratic delegation was elected, although the Republican candidates received 37.14% of the entire vote cast.

SIGNIFICANCE OF THE ELECTION

Radical Sentiment.—Although a Progressive conference was held in Washington in 1931 for the purpose of uniting the liberal forces of the country, and although several subsequent attempts were made by John Dewey, Paul Douglas, Norman Thomas and other leading critics of the established order, there was no appreciable increase of radical sentiment. Obviously, the American people have not yet reached the point where they are willing to forego the promise of a capitalist-democratic society. However, the prediction of Professor Douglas that no gains would be made except by Farmer-Labor parties was validated by the Minnesota results.

Demand for a Change.—It was obvious that the American people had rejected the individualist philosophy of the Republican leaders just as they had rebuked the tenacious loyalty of

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various leaders to the prohibition law. Unquestionably, the people desired a change.

Unanswered Questions.—On the positive side, nothing is as yet clear. Whether the people desire isolation from Europe or closer union; higher tariffs or lower tariffs; increased expenditures for public works or indiscriminate economy; beer and light wines or the controlled sale of stronger liquors; sales taxes on the consumers, or higher income taxes on the more fortunate producers, or bond issues;

drastic governmental reorganization or "muddling through,"—none of these questions have been answered.

Interest in Economics.—Perhaps it is significant that two months after the election, the eyes of the nation turned toward Atlantic City where the engineers wrangled over "Technocracy" and toward Cincinnati where the economists discussed wages, profits and plans, rather than toward Detroit where the political scientists all too calmly weighed the forms and techniques of political government.

THE PRESIDENT AND HIS POLICIES

BY JAMES HART

ASSOCIATE PROFESSOR, JOHNS HOPKINS UNIVERSITY

ECONOMIC RECONSTRUCTION

Hoover's Views and Proposals.—

In a special message of Jan. 4 President Hoover listed eight "principal subjects requiring immediate action": (1) strengthening of the Federal land bank system; (2) creation of a reconstruction finance corporation "to reopen many credit channels"; (3) creation of a system of home loan discount banks; (4) enlargement of the discount facilities of the reserve banks to take care of emergencies; (5) a plan for early distribution to depositors in closed banks; (6) revision of the transportation laws to restore confidence in railroad bonds; (7) revision of the banking laws "to better safeguard depositors"; and (8) drastic economy, adequate increase of taxes, and restriction of Federal securities. The President was able to sign the R. F. C. bill in January, and thus set up the pillar of his reconstruction program. Later, he signed the Glass-Steagall bill for credit expansion, and still later the home loan bank bill. The President inaugurated an anti-hoarding campaign. He also vetoed several bills which he considered to be raids on the Treasury or economically unsound. He opposed the cash bonus, and that was defeated in the Senate.

Farm Relief.—In a 12-point cam-

paign program for farm relief the President included: tax relief for farm lands; a national plan of farm utilization, and relief from the pressure of long-term mortgage payments. In his address before the Senate in May he proposed that the R. F. C. be authorized: to divert a portion of unexpended authorizations of agricultural loans to finance exports of farm products; to make loans upon the security of farm products to institutions to assure the carrying of normal stock of these products and to steady the price level, and to make loans to the Federal Farm Board to enable extension of finance of farm coöperatives.

TAXES AND ECONOMY

Administrative Reorganization.—

In a special February message the President urged, in the interest of economy, that he be given broad power to effect administrative reorganization by executive orders, such orders to become effective unless Congress rejected them within sixty days. In April he had the budget bureau prepare an omnibus economy bill to reduce governmental costs by an amount estimated at \$225,000,000 to \$250,000,000. The ordinance-making power referred to was finally granted, and in December the President, in a special cover-

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ing message, transmitted his executive orders. He said: "I have made no estimate of the economies which will eventually result. . . . These orders constitute the necessary initial step. . . . These results can only be worked out progressively by the executive officers placed in charge of the different divisions."

Budget Balancing.—In April Mr. Hoover, in a special message, urged Congress to revise his own budget estimates and, in order to make this possible, enact a drastic legislative program of economy. Congress was reluctant to increase taxes or enact drastic economies. The Ways and Means Committee outdid the administration in courage in first proposing a manufacturers' sales tax, but that was rejected by Congress. In a special message in May, Mr. Hoover sharply took Congress to task for delay in balancing the budget. Later in May he delivered an address to the Senate, and said "the continued downward movement of the economic life of the country" was in part attributable to delay in balancing the budget and to "proposals of projects which would greatly increase governmental expenditures." He urged still higher taxes than had previously been thought necessary, and proposed the manufacturers' excise tax. He signed the tax and economy bills which Congress finally enacted. The latter, he said, was signed "with limited satisfaction," because it was not adequate and would postpone consolidation until the next Congress.

RELIEF

Mr. Hoover had stood upon the principle of no direct Federal relief. But in May he offered to the Democratic plans a counter-proposal which, he claimed, left his "fundamental policy" unchanged. This included loans to be made by the R. F. C. only to states which actually needed them, and to "income producing and self-sustaining enterprises," the funds to be raised not by a Federal bond issue but by the sale of R. F. C. securities as they might be needed. The President suggested the five-day week for Federal employees, and held non-

productive government construction had reached its limit of beneficial expansion. "We cannot thus squander ourselves into prosperity," he said. He held Speaker Garner's relief plan to be "the most gigantic pork-barrel ever proposed to the American Congress" and "an unexampled raid upon the Treasury." He also denounced the Wagner relief plan as pork-barrel because it proposed non-productive government works and apportionment of aid to states according to population, irrespective of need. The conference report was likewise attacked because it provided for loans to individuals upon any security and for any purpose. The President said this would make the R. F. C. "the most gigantic banking and pawn-broking business in all history," and would shake Federal credit. He also objected to a provision for some direct Federal relief. He vetoed the bill, but signed a compromise which partially met his wishes.

PROHIBITION

The administration kept the Republican wets from placing an unqualified repeal plank in the Chicago platform. The plank adopted proposed resubmission, but subject to retention of Federal power to prevent the saloon and Federal protection of dry states against the liquor traffic from other states. It left every Republican free to stand where he pleased. In his acceptance speech Mr. Hoover reaffirmed this stand, and Al Smith called him the dry leader. At St. Louis he failed to advocate modification of the Volstead Act so as to permit beer in the meantime.

MISCELLANEOUS

In a special message in February the President made specific recommendations for reform of judicial administration and the bankruptcy laws. In March he signed the Norris anti-injunction bill, while stating that the Attorney-General found its constitutionality doubtful. The President was upheld by the Supreme Court in refusing to return to the Senate the papers relating to three appointees to the Federal Power Commission. The

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Senate had reconsidered and rejected their names after the President had commissioned them upon the basis of the original Senate confirmations. Mr. Hoover was greatly criticized for ordering the eviction of the bonus army.

He moved just before election for increased tariffs by asking the Federal Tariff Commission to study the effects upon American protection of depreciation of foreign currencies. After his defeat he extended to the victor an unprecedented invitation to confer upon the war debts problem. He might have accomplished more if his invitation had been informal and without the flare of trumpets.

FOREIGN POLICY

Work for Peace.—In his acceptance speech the President said sincerely: "My foreign policy has been devoted to strengthening the foundations of peace." "We shall, under the spirit of that (the Kellogg-Briand) pact, consult with other nations in times of emergency to promote peace. We shall enter no agreements committing us to any future course of action or which call for use of force to preserve peace." "Above all, I have projected a new doctrine into international affairs, the doctrine that we do not and never will recognize title to possession of territory gained in violation of the peace pacts."

Disarmament.—The President worked sincerely for success of the disarmament conference. He agreed to an extension of the existing arms truce. Yet he showed characteristic American lack of realism in dealing with arms as if they were unrelated to the European issue of "revisionism" *versus* "security."

War Debts.—He showed the same lack of realism in linking the war debts with disarmament, as if France would trade her "security" for easier debt payments. He continued to refuse to link debts with reparations, although France understood the Hoover-Laval Conference to have linked them, and although his moratorium proposal had in effect done so. He never explained clearly to the American people the bearing of America's protective

tariff upon the transfer problem in the war debts payments, or the bearing of this problem upon the restoration of American foreign markets. The President seemed favorable to further negotiation, however, and during the campaign suggested "some other form of tangible compensation," such as use of the debts to secure expansion of American markets. The British rejected his later suggestion that the December payment be earmarked in sterling, the transfer to be made when conditions warranted.

THE CAMPAIGN

On Aug. 26 Mr. Hoover told business leaders called to Washington by him "to better organize private initiative" that "we have overcome the major financial crisis," but "the war is not over." As the campaign progressed, he was forced into activity to defend his policies, something which an incumbent seldom does. He was fond of picturing himself as the general leading the battle against depression on many "fronts." "I did not (in the boom period) notice any Democratic Jeremiahs," he once said. He claimed that revival was beginning as a result of his efforts, and warned the country against the dangerous schemes of the new deal. The time-honored Republican technique of frightening the country into giving its support did not work on this occasion. The Democrats were particularly annoyed by his claim that the "peril" of being forced off the gold standard has been "escaped only by the most drastic action." The President advocated repeal of the price stabilization provisions of the Farm Marketing Act. "No power on earth," he said, "can restore prices except by restoration of general recovery and markets." "No regimented mechanisms but free men is our goal," he said. "Herein lies the fundamental issue."

PRESIDENT HOOVER'S SWAN SONG

Aids to Recovery.—In his final annual message Mr. Hoover ignored beer, "repeal," and farm relief. He offered statistics to show that there had

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been since July "improvement of conditions in many parts of the country," and suggested three definite directions for immediate action: (1) reduction of expenses; (2) reorganization of the banking system; (3) cooperation with other governments in the economic field. Specifically, he proposed: (1) continuance of the furlough system for Federal employees and an additional cut of 11 per cent on governmental salaries over \$1,000; (2) cuts in appropriations, including some for veterans' services due to "ill-considered legislation"; and (3) a uniform manufacturers' excise tax except on "necessary food and possibly some grades of clothing." His budget message made his financial proposals more specific, and predicted a huge deficit for the fiscal year, and again for the next fiscal year unless the additional economy and tax programs were carried out.

CRITIQUE OF PRESIDENT HOOVER

No man ever brought to the presidency an equal equipment of experience in large-scale organization and of practical grasp of modern economics. In 1928 he symbolized the "scientific" approach to governmental problems and the conception of the presidency as a focal-point for the intelligent guidance of cooperative effort. Whatever history's judgment of Hoover, the potentialities of his big idea should not be lost sight of. No great man, ever, is the realization—he is only the over-capitalization—of his big idea. Yet the results were certainly disappointing, and this disappointment is attributable to three factors which are examined below.

(1) **The Man.**—Hoover lacked the personality needed to make a great leader of democracy. His record on prohibition was on its face one of avoidance. He prostituted his central idea when he ignored the findings of the Wickersham Commission. It was partly because of personal defects that he did not in action "get over" his idea to the people, and was widely regarded as "just a blueprint man." His intellect was fertile only within certain rigid limits. His thinking was blocked by certain *idées fixes*, such as

his nineteenth century conceptions of individualism and equality of opportunity. These intellectual blocks may explain his failure to break new paths of policy.

(2) **His Handicaps.**—Inaugurated in March, 1929, he met the stock market crash in October of the same year. If he failed to foresee it, so had most people. If his first steps were based upon failure to anticipate the coming of the worst depression in history, that failure was also common. When once he faced the ugly facts, he showed himself able to work out a constructive program of which he can be proud. But meanwhile the Democrats won control of the House in the 1930 election. They enacted some of his policies, while they blamed him, in effect, for everything. Their publicity bureau was producing effective anti-Hoover propaganda. It found this the easier because Hoover had been promoted as a sort of economic magician. The public does not understand science, and regards it as a sort of wizardry. The assumption that an "economic scientist" could work miracles made the disillusionment all the more bitter. It meant, probably, the end of Hoover's political life, and a failure to grasp the part such men can play in future economic planning under political conditions which give them some freedom of choice.

(3) **The Democratic Dogma.**—If a man is to be judged fairly, especially in politics, he must be judged by relative standards. Who else, since the war, has proved himself a leader of the Wilson type, except possibly Al Smith, who was not given a chance? Certainly the 1932 campaign leaves Franklin D. Roosevelt still to prove himself a great leader. The basic trouble lies in the American conception of democracy. Our government is too representative rather than not representative enough; it is representative of the least common factor of public understanding. Hence, those who grasp the complexity of questions like the war debts problem do not dare try to lead. It is the "degradation of the democratic dogma" for the man in the street to presume to

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pass upon such a problem. The dictatorship of a Mussolini may be, in particular circumstances, a justifiable alternative. But another alternative, at once more difficult and in the long run better calculated to serve the public welfare, is the education of the masses in a different conception of democracy. Their function is not to decide, but to elect men of character and capacity to put into operation experimental solutions which these responsible officials, after expert advice and careful thought, deem best. Under such conditions Hoover might have made an ideal president. Freed from political timidity, his *idées fixes* might have been dissolved by the pragmatic tests of the practical man in action. Certainly he would have been in his element, which is to use freedom of choice boldly in organizing big enterprises and working out economic puzzles. That public office does not offer a man of his type a combination of freedom of choice with responsibility for results is the tragedy alike of American democracy and of Herbert Hoover.

RELATIVE COMPARISONS

Meaningful comparisons of presidents are made, not in terms of some abstract variable like "greatness," but relative to specific questions. The question "Was Hoover great?" must be met by a counter-question: "Great in what respect and by what cri-

teria?" Thus his leadership ranks below Theodore Roosevelt's and at least as high as Taft's. Again, he must, on any fair count, be placed among those presidents who symbolized a major development of their era.

HOOVER IN HISTORY

The historian's judgment is apt to be a refinement of the verdict of posterity, and the latter is not more just or true, in any absolute sense, than a contemporary verdict. It has the advantage of perspective, but also its disadvantage. Perspective allows the cooling of partisan passions, but it makes a man's place in history depend upon whether his contribution is significant fifty years later. Thus Woodrow Wilson's place in history is tied up with what humanity does with his League after he is dead. Bearing these limitations in mind, one may venture to predict what posterity will do with Hoover. He will not remain at the low level of his present popularity. He will not stand at the top of the presidential calendar with Washington, Lincoln and Wilson; but certainly he will not stand at the bottom with Buchanan, Grant and Harding. His name will appear somewhere in the upper middle range of chief executives. It will symbolize his big idea. Yet the tragedy remains that it will be lower than it might have been if the conditions of American democracy had given the man a fair chance to display his abilities.

NATIONAL PERSONALITIES

By JAMES HART

ASSOCIATE PROFESSOR, JOHNS HOPKINS UNIVERSITY

FRANKLIN DELANO ROOSEVELT

Nomination.—The race for the Democratic nomination was one of Roosevelt against the field. The "progressivism" of the New York governor appealed to the West. The South saw in him the best chance to head off Smith. His supporters were early and active in lining up delegations. When Garner released his dele-

gates, McAdoo started the rush for the Roosevelt bandwagon in the Chicago convention. Then Mr. Roosevelt made a dramatic airplane flight to Chicago to deliver his speech of acceptance before the convention which had named him.

Successful Campaign.—During the campaign the Democratic strategy was brilliant. Roosevelt's strenuous

speaking tours made absurd the whispers that he was physically unequal to the presidency. He flirted successfully with the Western progressives at the same time that he "vaccinated" himself against Eastern charges of radicalism by well balanced speeches and interviews with conservative business men. In the words of Frank R. Kent, he played successfully the game of "making no mistakes"; accordingly he rode into power on the wave of popular discontent.

Program.—Governor Roosevelt chose a popular theme when he attacked the Republican leadership. The people responded to him not so much for himself as to a focal point for the articulation of their grievances. He accepted the party platform "100%." His flat stand for "repeal" and for beer as soon as possible contrasted favorably with the record and 1932 position of Hoover in the eyes of a country which was tired of "straddling" on this issue and which had been swept by a reaction against prohibition. His positions on farm relief, public utilities, and the tariff were "progressive" without being "dangerous." He had little to say about foreign relations, though before his nomination he had apparently won the favor of Hearst by a weak statement opposing America's joining the League of Nations. To some Wilson Democrats his addresses had the flavor of Woodrow Wilson diluted with water.

Roosevelt and Tammany.—The governor removed Sheriff Farley and conducted the Walker hearing with a dignity and firmness which pleased the country without losing the support of Tammany. Tammany could not afford to turn against a winner for doing what it knew he had to do. If he had made a sweeping indictment of the whole system of bi-partisan corruption in New York, that might have been different.

Hoover-Roosevelt Conference.—The President-elect accepted, albeit with reservations, President Hoover's invitation to a conference on the pressing problem of war debts. These two

could have joined in proposing a workable permanent settlement of this vital question. Public opinion and prior commitments, however, prevented this. In their later statements, Mr. Hoover suggested that Congress might create a commission like the one which had made the original debt-funding settlements, while Mr. Roosevelt insisted that the executive is competent to conduct all needed negotiations. This hinted, as Walter Lippmann pointed out, at a return to the pre-Harding system of untrammelled executive control of foreign intercourse. It is to be hoped that Mr. Roosevelt will act accordingly when he takes office. The statement attributed to him that the problem "is not my baby" has hurt him in the eyes of thinking people.

Will Roosevelt Succeed?—The next president is a cultured gentleman whose personal integrity is beyond question. He has sense, though his intellectual grasp does not seem to be of the first order. His gubernatorial experience will give him a threshold advantage over Hoover. His affability will give him another potential advantage over his predecessor. Yet, unless coupled with firmness and decision, it may prove a liability rather than an asset. He seems to know how to choose able advisers. He or they understand political strategy better than the Hoover group. Yet one senses a danger of over-playing the game of politics even after the assumption of responsibility. Mr. Roosevelt has a great opportunity in full party control and an overwhelming popular mandate for beer, repeal, economy in action rather than in talk, and economic rehabilitation. The crucial question about the man is whether he is equipped with the stuff of which strong and courageous leadership is made and with the overwhelming purpose to lead rather than play safe. The campaign did not prove that he is so equipped, but the presidency has proved men of less character than he to have potentialities hitherto unrevealed.

The Meaning of Victory.—Whatever the outcome, his overwhelming

victory had the effect of giving a discouraged country the vague hope of a new deal and of proving that the opposition party is not a permanent minority. The Republicans need to be turned out occasionally, even if it is done at the wrong time.

JOHN NANCE GARNER

The Garner Meteor.—During the first months of the long session the tacit truce by which a Democratic House cooperated with a Republican administration surprised and pleased the country. Speaker Garner was an able leader, and a Garner boom got under way. However, the Garner leadership collapsed when the House defeated the manufacturers' sales tax proposal of its own Ways and Means Committee. Garner failed to call a caucus to force party solidarity and give an "alibi" before his constituents to the individual member. Nor did he speak in favor of the sales tax when the crucial vote came in the House. Later, like a Southern revivalist, he dramatically asked all to stand who wanted to balance the budget. From then on Garner's leadership seemed to run amuck. Thus, he got the House to adopt a relief measure which President Hoover justly denounced as pork barrel, and failed to exert his leadership to prevent the application of the discharge rule to the Patman bonus bill which the committee had bravely refused to support.

Nomination.—Nevertheless, the Chicago convention nominated Mr. Garner for the vice-presidency, apparently as a reward for releasing his delegates and enabling McAdoo to swing the nomination to Roosevelt.

Inactive Campaign.—During the campaign Mr. Garner, whether by his own choice or at the suggestion of campaign headquarters, had very little to say. In a major radio broadcast he defended his leadership, criticized the Administration, and tried to neutralize the impression that he was a "wild" man.

Repeal Effort.—In the short session, the Speaker made a bold move in having introduced, on the very

first day, a "repeal" resolution to fulfill the Democratic pledge. This resolution received six votes less than the necessary two-thirds. Garner did not call a caucus on the issue, but he was dealing with a "lame-duck" Congress.

ALFRED E. SMITH

Record as Titular Head.—After a long silence Mr. Smith in February combined receptivity with neutrality, although he was known privately to oppose Roosevelt. At the Jefferson Day Dinner he denounced "demagogic appeals" without calling Roosevelt by name. In several able speeches on current issues he showed that he took his titular headship of the party seriously. At Chicago he refrained from renouncing his own ambitions so as to oppose Roosevelt openly and effectively. He went home in a sullen mood, and the two leaders were not reconciled until October, after the success of their joint effort to have Lehman named as the gubernatorial candidate in New York. Later, Smith came out flatly for the ticket and gave it needed support in the New York group of states.

Criticism.—Smith showed lack of judgment in thinking his own nomination possible or expedient. His opposition to Roosevelt smacked of sour grapes so long as he remained a candidate. His failure at Chicago to oppose Roosevelt openly before the convention and at the same time to remove himself from the race disappointed many of his friends. It may have been justified by the view that the chief aim was to defeat Hoover and hence to prevent an open split among the Democrats. After the convention Smith appeared a poor loser.

The Tragedy of Smith.—Yet he remains the most colorful and wholesome figure in American public life. He is the one man in active politics who has the capacity and purpose for high leadership of the type of Theodore Roosevelt and Woodrow Wilson. It is a sad commentary upon American democracy that this man cannot be given his chance.

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OGDEN L. MILLS

Secretary of the Treasury.—As Undersecretary and then Secretary of the Treasury, Mr. Mills played a prominent part in discussions of national finance and in the campaign defense of Hoover. He was severely criticized for not revising his financial estimates until it was practically too late for Congress to balance the budget. He opposed Democratic plans for a bond issue for relief.

Will He Become Hoover's Heir?—

The passing of the Old Guard Republicans and the necessity for reorganizing Republican leadership after the crushing November defeat leave Mills in a strong position to seize the reins. He is ambitious and intelligent, though he appears to many to be too wedded to orthodox ideas to adjust Republican policy to the needs of an era of transition.

HENRY L. STIMSON

His Year's Record.—The Secretary of State set forth the doctrine of non-recognition of the results of Japanese aggression in Manchuria which affected American rights in China. This doctrine won general approval. That it will check Japan, however, seems doubtful. Senator Glass among others criticized the State Department's policy in passing informally upon foreign loans. Unsuccessful efforts were made to prove some sinister connection between the Barco concession and the Department's favorable attitude toward a loan to Colombia. The Secretary declared the bill passed by the House for Philippine independence might endanger the peace. He was at one time reported to be favorable to the economic boycott as a weapon against Japan, but the country was not prepared for acceptance of any such move. He made a notable address on the Kellogg Pact, in which he advocated consultation when violation of the pact is threatened and indicated that the traditional conception of neutrality is in this respect outmoded.

CABINET CHANGES

Andrew W. Mellon, Secretary of the Treasury since 1921, resigned, to

be succeeded by Ogden L. Mills. Mr. Mellon accepted the ambassadorship to Great Britain which General Dawes had resigned. The President made Dawes the first head of the Reconstruction Finance Corporation. When Secretary of Commerce Robert P. Lamont resigned, he was succeeded by Roy D. Chapin, of Detroit.

SENATORS

Carter Glass of Virginia took a leading part in credit-expansion legislation and in proposed reform of the banking laws. He is looked upon as the grand old man of congressional finance.

George W. Norris of Nebraska saw the adoption during the year of two of his pet measures. These were his anti-injunction bill and his resolution submitting the lame-duck amendment to the states.

Robert F. Wagner of New York took the lead in the Senate in presenting the Democratic relief plan.

Huey Long of Louisiana, a clever demagogue, attacked the concentration of wealth, and resigned from his committee positions in protest against the party leadership of Senator Joseph T. Robinson, of Arkansas.

McAdoo.—The November election returned to public life William Gibbs McAdoo, war-time Secretary of the Treasury, when he was elected senator from California, and retired the last members of the Republican Old Guard, notably Senators George H. Moses and James E. Watson.

REPRESENTATIVES

Charles R. Crisp of Georgia, son of former Speaker Crisp, won respect by his courageous support of the committee's tax bill when the onslaught started on the floor of the House.

Fiorello H. LaGuardia of New York organized the successful fight against the manufacturers' sales tax.

Wright Patman of Texas won an unenviable notoriety as the symbol of the movement for the cash bonus.

ROOSEVELT ADVISERS

James A. Farley conducted Mr. Roosevelt's successful campaign. It is assumed he will be made postmas-

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ter-general, though he will probably remain at the same time chairman of the Democratic national committee. Professor Raymond Moley, of Columbia University, came to be known as the head of the Roosevelt "brain trust." He accompanied the President-elect when the latter conferred with the President about war debts. Colonel Edward M. House was reported to be another close adviser of Roosevelt. It has also been predicted that Bernard M. Baruch will be prominent in the next administration.

BRIEF MENTION

Defeated Candidates.—Charles Curtis was renominated as the Republican vice-presidential candidate. The move to head him off was said to have been blocked by Hoover. His

lack of calibre was offset by a similar lack of Garner. Norman Thomas, again running for the presidency on the Socialist ticket, received unusual press attention, but failed to poll the vote he had been expected to receive.

Calvin Coolidge.—In his Madison Square Garden address in behalf of Hoover, Calvin Coolidge gave a naive exposition of the Republican philosophy of government.

Judges.—Justice Oliver Wendell Holmes resigned from the United States Supreme Court during his ninety-first year, thus ending the active career of the most brilliant legal thinker America has produced. President Hoover won practically universal praise for appointing as his worthy successor Benjamin N. Cardozo, Chief Justice of the New York Court of Appeals.

CONGRESS AND ITS FUNCTIONS

BY GEORGE C. S. BENSON

INSTRUCTOR, HARVARD UNIVERSITY

HOOVER RELIEF PROGRAM IN THE 72ND CONGRESS

Federal Land Banks.—Upon reconvening on Jan. 4, 1932, the first session of the 72nd Congress found a special message from the President advocating a comprehensive program for combatting the depression. Most of this program was enacted by Congress with a fine non-partisan spirit. The "principal subjects requiring immediate action" included strengthening of the Federal Land Bank System. A bill (H.R. 6172) authorizing an additional capital of \$125,000,000 and setting aside \$25,000,000 for extension of time on overdue mortgages, had been passed by the House in December and was soon passed by the Senate and approved.

The Reconstruction Finance Corporation was created to furnish credit and give confidence to "agriculture, industry, and labor." The bill (H.R. 7360) giving this corporation \$500,000,000 capital and authorizing it to secure \$1,500,000,000 through govern-

ment guaranteed obligations and to exercise a broad discretion in loaning to needy businesses, was signed, Jan. 22. There were to be seven directors, three *ex-officio*, not more than four of the same party. A later effort to even the party line-up was rejected.

Home Loan Banks.—A system of home loan discount banks was established, the capital to be largely supplied by participating institutions but with a "residue" from the Federal Government. When the bill (H.R. 12280) was approved on July 22, Mr. Hoover explained that the total capital of \$125,000,000 was to be initially subscribed by the Reconstruction Finance Corporation. The long delay in passing this bill was due to slow committee consideration and not to strong opposition. In fact most of the President's Relief program had unusually smooth sailing through the Congressional shoals.

Federal Reserve Banks.—The discount facilities of the Federal Reserve Banks were enlarged. Towards the end

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of February the Glass-Steagall bill (H.R. 9203), which allowed Federal Reserve banks to use all Federal obligations as security for Federal Reserve notes and to make advances to member banks on previously ineligible paper, passed without a dissenting vote. Mr. Hoover signed the bill on the 27th, lauding both parties for this "national defense measure" which freed "vast amounts of gold" and enabled the Federal Reserve Banks to accommodate the credit demands of many other banks.

Railroads.—Revision of railroad legislation was undertaken along the lines recommended by the Interstate Commerce Commission in order to restore confidence in railway bonds. These recommendations, centering about regulation of competitive means of travel and repeal of the recapture clause of the Act of 1920, were not acted upon though the Senate Committee on Interstate Commerce held hearings on the Couzens bill (S. 2793) for Federal regulation of interstate buses and trucks. Aid given the railroads by the Reconstruction Finance Corporation probably lessened the pressure for other legislation in this session.

OTHER RELIEF PROGRAMS

Loans to States.—Although bankers and industrialists and to a lesser extent, farmers and homeowners, were first at the Congressional crib with administration backing, other economic groups found non-administration mouthpieces in Congress and eventually administration support. The largest group was the unemployed whose cause was argued before a committee headed by Senator LaFollette. Hearings showed a real demand for Federal relief from social workers of all sorts. LaFollette's bill (S. 3045) provided an appropriation of \$375,000,000,—only \$125,000,000 to be spent in the current fiscal year—to be administered by a Federal relief board which should distribute the money through agencies designated by the states. The bill was amended to provide that one half the amount should be expended on public works to provide employment. In this

form it failed to pass the Senate by a vote of 48 (27 R., 21 D.) to 35 (19 D., 15 R., 1 F.L.). Opposition included the leaders of both parties and probably the Administration. Another bill (H.R. 9642) providing for loans of \$130,000,000 to the states for road building was adopted by the House 205 (151 D., 53 R., 1 F.L.) to 109 (97 R., 12 D.) but not considered by the Senate.

Wagner-Garner Bill.—It was perhaps unfortunate that Mr. LaFollette's soberly worked out bill did not pass. In June the Democratic-Insurgent group began applying the airy figures of the Reconstruction Finance Corporation to Unemployment Relief. Mr. Hoover himself had so far given in to the increasing evidence of misery as to advocate an R.F.C. loan of \$300,000,000 for public relief and an increase of R.F.C. capitalization to \$3,000,000,000 for loans for productive purposes. The Congressional bill (H.R. 12445 and S. 4755), as agreed to after a long inter-House squabble,—the Democratic House favoured more direct relief,—provided a total relief budget of \$2,100,000,000. One and a half billion dollars were to go to the R.F.C. for loans to public and private enterprises; \$300,000,000 for construction of public works; \$200,000,000 for loans to the states for relief on a basis of population and \$100,000,000 for loans to the states for relief on a basis of need. An unusually partisan vote was recorded on this so-called Wagner-Garner bill. For example, the conference report was accepted on July 7 by a House vote of 202 (166 D., 35 R., 1 F.L.) to 157 (155 R., 2 D.) and a Senate vote of 43 (29 D., 14 R.) to 31 (25 R., 5 D., 1 F.L.). The President vetoed the bill because it authorized loans to individuals or private corporations. A promptly re-drafted bill (H.R. 9642) authorizing a total expenditure of over two billions—\$1,800,000,000 to be loaned to public agencies for relief work and self-liquidating projects and \$322,000,000 to be spent on Federal public works was passed on July 15 and soon approved.

Jones Maternity Bill.—Two old

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time relief proposals reappeared in depression guise. The first, made necessary by lowering standards of living, was the Jones "Maternity and Infancy" bill (S. 572 and H.R. 5725), reviving the subsidies of the Shepard-Towner Act. It was favorably reported by House and Senate Commerce committees though there were strong minority reports. The need for governmental economy prevented any real pressure for action.

Soldiers' Bonus.—The other, very different, old timer was the bonus, once again offered as a method of ending the depression through inflation. A bill (H.R. 7726) providing for immediate payment of the face value of adjusted compensation certificates by issuance of \$2,400,000,000 bonds was reported unfavorably by the House Ways and Means Committee. The new discharge rule was successfully evoked to take the bill from the Rules Committee. It was approved in the House by a vote of 209 (153 D., 55 R., 1 F.L.) to 176 (126 R., 50 D.). The Senate Finance Committee reported unfavorably on June 16, and the bill lost in the Senate by 62 (35 R., 27 D.) to 18 (10 D., 7 R., 1 F.L.) despite the encampment of a Bonus Expeditionary Force in Washington to try to force passage of the bill.

REVENUE MEASURES

Taxes.—The first real storm in Congress was precipitated in February by what was bound to be a difficult matter in depression times,—taxation. The bill introduced by the House Ways and Means Committee (H.R. 10236) on March 7 provided for a 2.25% general manufacturers' sales tax expected to raise \$1,000,000,000. An increase in income taxes up to a 40% surtax on incomes above \$100,000, a gift tax, amusement taxes and special excise taxes, were added in an effort to balance the budget of 1933. The fact that the bill had been prepared by a Democratic Ways and Means Committee, which accepted the sales tax as an unpleasant necessity, seemed to assure its passage. Then came a revolt of both parties,—the LaGuardia-Doughton bloc—which may

be viewed as liberalism rising against old party leadership or as the breakdown of Democratic unity. Results of the revolt were the striking out of the sales tax by a vote of 223 to 153, with 45 Democrats and 108 Republicans standing by the Democratic Committee's program, and the increase of inheritance and income taxes. Efforts to stabilize revenue and prevent increased income taxes through the sales tax had thus led to a swing of the political pendulum into a soak-the-rich attitude which would never prevail over President and Senate. Calm compromise finally reappeared in the wake of a dramatic appeal by Speaker Garner for passage of a revenue bill. In the next few days the House adopted a large number of excise taxes, stock transfer taxes, increased postal rates, and restored surtaxes to the 40% maximum. The rewritten bill was sent to the Senate by a vote of 327 (164 D., 162 R., 1 F.L.) to 64 (37 D., 27 R.). In the Senate Finance Committee, the bill was delayed by disputes over tariffs on oil, lumber, coal, and copper, a problem which had also troubled the House. On May 31, Mr. Hoover made a personal appearance on the Senate floor to assure passage of the bill or to make capital out of the bill's assured passage, according to varying interpretations. In any case the bill was passed 72 (41 R., 31 D.) to 11 (8 D., 2 R., 1 F.L.) and the conference report agreed to and approved by June 6. In its final form, providing for increased income taxes, postal rates, excise taxes, and stamp taxes, it was a much more rational bill than most descriptions of the political pandemonium preceding its passage would lead one to suspect.

Tariff Rate Changes.—Democratic attitudes on the tariff were demonstrated with H.R. 6662, a bill giving Congress the existing power of the President to make "emergency" changes in tariff rates as well as asking the President to call an international tariff congress and to negotiate reciprocal tariffs. The bill passed the House on Jan. 9 by a vote 214 (201 D., 12 R., 1 F.L.) to 182 (all R.) and the Senate on April 1 by a vote of 42

(36 D., 6 R.) to 30 (all R.). The President's veto was sustained in the House.

REORGANIZATION OF ADMINISTRATION

Although the cost of operating the government departments and bureaus is only a slim third of Federal expenditures, it came into the limelight of many an economy exhibition. In December, 1931, it was evident that the President and Democratic leaders differed sharply, Mr. Hoover favoring a much needed reorganization of administrative agencies under executive direction and a furlough without pay for government employees as a method of reducing costs. The Democratic House favored reorganization through Congressional action and percentage salary cuts. The question was not how to reorganize the government but who was to get credit for reorganizing it. Mr. Hoover suggested a mixed commission and members of a House Economy Committee did confer with administrative officials on two occasions in March and April. Finally an omnibus economy bill (H.R. 11267) was worked out which saved \$150,000,000 by cutting the government payroll through compulsory furloughs—the President's plan was forced on the House by the Senate and backed by organized labor—and through regrouping of agencies which may be done by the President in case Congress does not disapprove within a sixty-day period. This bill was approved June 30. Customary appropriation acts were \$350,000,000 less than for the preceding year. But these savings and the savings of the Economy Act were swamped in an increase of \$848,000,000 in special acts for the Relief Program and for Veterans' Administration.

MISCELLANEOUS LEGISLATION

"Lame Duck" Amendment.—Under this term are included a number of significant pieces of legislation. Two of the most useful measures came from the hard-working Senator Norris. His "Lame Duck" Amendment (S.J. Res. 14) sets the date for assembling of a new Congress on Jan. 3 and for

inauguration of a new President on Jan. 20. The Resolution was passed by large majorities in both Houses and ratifications have been coming in rapidly, so it seems probable that Mr. Norris' years of effort in this direction will be crowned with success.

Labor.—The other bill (H. R. 5315) sponsored by Senator Norris and Representative LaGuardia forbids issuance of labor injunctions without full hearing and unless overt acts are committed, recognizes the right of labor to organize and declares the yellow dog contract unlawful. It was passed by the Senate 75-5 on March 1 and by the House 363-13 a week later and approved in a fortnight. The Senate opposition was a group of New England Republicans.

Bankruptcy and Copyright.—Other reform measures made slower progress. A bankruptcy bill, drafted by the Department of Justice, was introduced in both Houses (S. 3866 and H.R. 9968). Extensive hearings were conducted by joint subcommittees of the two committees on the Judiciary, —an interesting use of the Massachusetts legislative practice. Another much needed reform—the Vestal Copyright bill defeated in a general Senate filibuster the year before—reappeared as a Sirovich bill (H.R. 10264) and was accorded hearings but no vote. A uniform contracts bill (H.R. 255) was extensively discussed before the House Judiciary Committee.

Prohibition.—Two spectacular questions of the type which will not die came back with more than usual force in this session though the depression kept them from the full-flooded lights of publicity. There were several votes on Prohibition. A resolution of Senator Bingham asking state referenda on Prohibition was defeated in the Senate on Jan. 21, 55 (26 R., 28 D., 1 F.L.) to 15 (8 R., 7 D.). On Feb. 16, the House Judiciary Committee rejected, 14-9, H. R. Resolutions 208 and 209 giving the states the right to control liquor traffic within their borders. One of the authors, Mr. Linthicum, succeeded in obtaining 145 signatures to discharge the committee from consideration but

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the House refused to consider the resolution by a vote of 227 (114 D., 112 R., 1 F.L.) to 187 (97 R., 90 D.). A somewhat similar resolution to discharge the committee on a 2.75 beer proposal was later defeated 228-169. Wet strength was growing but there was a sentiment on the part of the moderates to forget Prohibition in a session beset by so many other worries.

Philippine Independence.—The second old question was that of Philippine independence granted by a bill (H.R. 7233) which passed the House 306 (186 D., 119 R., 1 F.L.) to 47 (all R.) on April 5. The Senate Committee failed to act on its version, (S. 3377).

INVESTIGATIONS

Numerous committee inquiries with no immediate legislation in mind marked this as every session of Congress. A divided report on Unemployment Insurance (S. Rept. 964 for majority and S. Rept. 629 for Senator Wagner) came in May and June. Senator Hebert for the majority proposed Federal tax exemption for unemployment insurance reverses while Senator Wagner advocated a general compulsory system. In March, the War Policies Commission reported a prize-freezing method of handling profiteers in the next war. A Committee on loans made to foreign governments elicited from the state department four cases in which such loans may be disapproved: 1. Unproductive loans, 2. Loans for military expenses, 3. Monopoly loans, 4. Loans to a country which has not funded its obligations to the United States. A Senate inquiry into buying and selling of securities on the New York Stock Exchange was voted on March 4 (S. Res. 84). Numerous figures on short sales were collected from Stock Exchange officials while various speculators answered embarrassing questions about stock market pools.

SECOND SESSION OF THE 72ND CONGRESS

No particular changes in organization were made for the short session. Four new Democrats and two new

Republicans were sworn into the House with, of course, no effect on the Democratic organization of the House. Some interest was excited by the flight of Walker, Democrat, of Colorado, appointed to fill the seat of the late Senator Waterman, to Washington in order to hold his seat for the few days till the Colorado elections board certified the seat of his elected Republican successor, Karl C. Schuyler. But the Democrats made no effort to organize the Senate. The most important alterations were caused by the death of Senator Jones of Washington. He was succeeded in his post as Chairman of the powerful Appropriations Committee by Senator Hale of Maine. Hale's chairmanship of the Naval Affairs Committee went to Shortridge of California.

LEGISLATIVE RECORD

Views of Party Policies.—Rarely in the history of the country has the lack of leadership possible in the old style American presidential system of government been more effectively shown than in December, 1932. The sole source of gratification to observers was the probable passage of the Norris Amendment to cut out the worst features of "lame duck" sessions like this one. The Democratic Party had won a sweeping victory in the November elections on a platform which called for repeal of the Eighteenth Amendment, legalizing of light wines and beer, economy in government, and something like "domestic allotment" farm relief. At the opening of the session, President-elect Roosevelt whom many Democrats in Congress regarded as their natural leader, was said to favor passage of beer, farm relief, and economy legislation and balancing the budget in order to avoid a special session of the Seventy-Third Congress. Towards the end of the month, he was reported to oppose a sales tax. A widely different point of view was represented in President Hoover's last annual message which recommended a general sales tax, pay cuts for Federal employees which with the earlier furlough cuts would make an average reduction of 14.8% on pay above

\$1,000, reduction in veteran and public works appropriations and reorganization of the government through consolidation and grouping of administrative agencies, and immediate reorganization of a faulty banking system. The budget presented on Dec. 7 followed up these suggestions with plans for a \$580,000,000 cut in appropriations, including \$127,000,000 less for veterans. Nothing was said about prohibition or definite plans for farm relief.

Partisan Clashes.—The clash of these varying programs began with the convening of Congress Dec. 5 and naturally prevented the passage of much important legislation before the close of the year, despite earnest efforts on both sides. Prohibition became a live issue with startling rapidity but meagre results. Speaker Garner's resolution (H. J. Res. 480) for repeal of the Eighteenth Amendment lost by six votes. (For, 168 D., 103 R., 1 F.L., Total, 272. Against, 44 D., 100 R., Total, 144) short of the necessary two-thirds, on the first day of the session. Much criticism of this "disregard of the mandate of the electorate" gave rise to two explanations—one, that the repeal resolution had been rushed to a vote without adequate debate or, two, that various "lame duck" elements had defeated it. Whether or not this last charge is true, the fact that 81 "lame ducks" were against the resolution and only 69 for it augured well for future repeal resolutions.

Beer.—Disconcerted at the outcome, the House turned to the Collier Bill (H.R. 13312 as the committee began hearings, H.R. 13742 as reported) permitting sale of 3.2% beer. Extensive hearings were held by the Ways and Means Committee on the theory that this was primarily a revenue measure, since taxes of \$5 per barrel and \$1,000 per brewer were provided in the bill. It was passed on the 22nd by a vote of 230, (133 D., 96 R., 1 F.L.) to 165 (101 R., 64 D.). It is worth noting that on both these votes, the dry Democrats were almost all from the South, and that almost half the dry Republicans were from the Middle West.

Senate action was limited to committee discussion of a modified repeal resolution which would try to prevent a return of the saloon and remove the protection of interstate commerce from shipments of liquor to a dry state. Senate action on the beer bill was uncertain and the chances of a veto were considered strong.

Philippine Independence.—Also, the chances for a veto of the Philippine independence bill (H.R. 7233) were considered strong. After a sporadic filibuster by Senator Cope land, this bill passed the Senate and was referred to conference. The conference report as approved recommended a 10-year term for independence. This term was to begin after the Filipinos had approved the scheme and had prepared a constitution which was satisfactory to the President. Limited importation of Philippine goods to the United States was to be permitted during the ten year period. A curious mixture of idealism and sugar interests ran through the debates.

Supply Bills.—Treasury-Post Office and Interior Department Supply bills passed the House Dec. 11 and 28 respectively. The first named carried a \$200,000,000 reduction from the previously yearly appropriations, inclusive of a \$39,000,000 Congressional reduction of the budget figure. But as the year closed, President-elect Roosevelt's opposition to a sales tax became dominant in Congressional circles which would have been in any case hesitant about stirring up embers of the previous spring's taxation battle, the more dangerous appropriation bills had yet to be considered, and there was a growing sentiment against Mr. Hoover's plans for consolidating administrative agencies. So the prospects for a balanced budget and no special session were not bright.

Miscellaneous Incidents.—A few spectacular incidents livened the first month of the session. Representative McFadden introduced a resolution (H. Res. 318) to have the judiciary committee investigate the President's actions with a view to impeachment. On Democratic motion, the resolution was quickly tabled with only 8 votes

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for it. A hunger march on the Capitol was closely supervised by the police and two committees representing the marchers were given short interviews by the Speaker and the Vice-President. Mr. Hoover's efforts

to secure Democratic cooperation on an ironing out of the war debts and the default of France received scattered Congressional attention. But the keynote of the session was "Wait until March 4."

FEDERAL LEGISLATION

By FREDERIC A. OGG

PROFESSOR, UNIVERSITY OF WISCONSIN

RECONSTRUCTION FINANCE CORPORATION

Establishment.—An act (H.R. 7360, Pub., No. 2, approved Jan. 22, 1932) provided for the creation of the Reconstruction Finance Corporation, with capital stock of \$500,000,000 entirely subscribed by the Federal Government. Of this amount, \$50,000,000 is allocated to the Secretary of Agriculture for the purpose of loans to farmers for 1932 crop production. Control of the corporation is vested in a board of directors consisting of the Secretary of the Treasury, the Governor of the Federal Reserve Board, the Farm Loan Commissioner, and four other persons appointed by the President. The corporation is empowered, under certain conditions and limitations, to make loans to railroads and to banks and other financial and credit institutions. All such loans are to be secured, and are to run for a maximum time of five years. The corporation may accept drafts and bills of exchange drawn upon it in connection with the exportation of products shipped abroad, and it may issue bonds, debentures, notes, etc., to an amount aggregating not more than three times its subscribed capital. Such obligations must mature in at least five years.

Enlargement of Powers.—An act (H.R. 9642, Pub., No. 302, approved July 21, 1932) widens the powers of the Corporation by making available the sum of \$300,000,000 for a relief and public works program. Loans can be made to states, municipalities, subdivisions of states, public corporations, etc. Private corporations en-

gaged in state or municipally controlled housing projects, or in other public works projects (bridges, canals, docks, etc.) may also borrow funds. Loans may further be made for the purpose of financing sales in foreign countries of agricultural surpluses which could not be financed by ordinary commercial means, provided that such sales will not adversely affect world markets. The Corporation may set up, in any of the twelve Federal Land Bank districts, an agricultural credit corporation with a paid-up capital of at least \$3,000,000. Such credit corporations may make loans or advances to farmers and stockmen for agricultural purposes. A further appropriation of \$322,224,000 is provided for emergency construction of public works, including roads, flood control, river and harbor projects, air navigation facilities, public buildings and equipment. The sum of \$7,436,000 is also appropriated for the construction of technical buildings and equipment for air transport services at military posts. Finally, the Reconstruction Finance Corporation governing board is enlarged by the addition of two more appointive members, and its maximum emission of obligations is increased to six and three-fifths times its subscribed capital stock.

OTHER EMERGENCY RELIEF LEGISLATION

Federal Farm Loan Act Amendment.—An act (H.R. 6172, Pub., No. 3, approved Jan. 23, 1932) authorizes the Secretary of the Treasury to subscribe for capital stock in Federal Land Banks, such subscriptions to be

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made after a request to that effect has been prepared by the directors of the bank and approved by the Federal Farm Loan Board. An amount of \$125,000,000 is appropriated for the purpose. The stock is non-voting and may be paid off at par whenever the directors and the Farm Loan Board desire. Federal Land Banks are required to carry to reserve at least one-half their net earnings until the reserve fund equals the outstanding capital stock; thereafter, ten per cent is to be added semi-annually. Farm loan associations must carry to reserve 10 per cent of net earnings until the fund equals 25 per cent of outstanding capital stock; thereafter, five per cent is to be added semi-annually. Federal Land Banks are empowered to extend the date of due obligations, and one-fifth of the total amount appropriated is to be used to supply banks with funds to replace those from which the bank is deprived by reason of such time extensions.

Federal Reserve Act Amendment.

—An act (H.R. 9203, Pub. No. 44, approved Feb. 27, 1932) authorizes any Federal Reserve Bank to make advances to banks within its district when such banks do not have adequate amounts of assets upon which credit could normally have been secured. The approval of five members of the Federal Reserve Board is necessary. Banks receiving such advances are to furnish time or demand promissory notes, and the Federal Reserve Bank is to charge a rate of one per cent above the regular discount rate. Federal Reserve Banks applying to the local Federal Reserve Agent for notes may, until March 3, 1933, with the consent of the majority of the Federal Reserve Board, offer as collateral security the direct obligations of the United States Government.

Agricultural Credit.—A joint resolution (H.J. Res., 292, Pub. Res., No. 11, approved March 3, 1932) empowers the Secretary of Agriculture to make loans to individuals for the establishment of, or further assistance to, local agricultural credit corporations, livestock-loan companies, or like organizations. For this purpose, a sum of \$10,000,000 is to be paid into

a revolving fund, in which also is to be deposited all money and interest received through the repayment of these advances.

Relief Distribution of Wheat and Cotton.—A joint resolution (H.J. Res., 418, Pub. Res., No. 33, approved July 5, 1932) makes available to the Red Cross, or other approved relief agencies, 45,000,000 bushels of wheat of the Grain Stabilization Corporation and 500,000 bales of cotton of the Cotton Stabilization Corporation. No mill or organization may profit from the processing of the wheat and cotton, and no distribution charges may be borne by the Federal Government.

Veteran's Transportation.—(H.J. Res., 473, Pub. Res., No. 39, approved July 15, 1932). This joint resolution appropriates \$100,000 to be used in financing the return to their homes of members of the Bonus Expeditionary Force quartered in Washington, D. C. The amounts thus advanced constitute a loan without interest which, if not repaid, will be deducted from the amount payable to the veteran on his adjusted service certificate.

Federal Home Loan Banks.—An act (H.R. 12280, Pub., No. 304, approved July 22, 1932) creates a system of from eight to 12 regional Federal Home Loan Banks. Any building and loan association, insurance company, or other institution making long-term home mortgage loans, may become a member of a Federal Home Loan Bank, provided it makes a stock subscription of one per cent of the aggregate of the unpaid principal of its home mortgage loans (minimum amount, \$1,500). Each bank is to have a minimum capital of \$5,000,000. All portions of this capital which are not subscribed by member institutions under the above conditions are to be subscribed by the Federal Government, the total of such subscriptions not to exceed \$125,000,000. Provision is made for the ultimate retirement of government stock. The system is governed by a Home Loan Bank Board of five members appointed by the President of the United States. Each bank is governed by 11 directors, two of whom are appointed by the Federal board,

the others being chosen on a somewhat complicated basis by the member institutions. Home Loan Banks are authorized to make advances both to member and non-member institutions and to private individuals who are unable to finance their mortgages through an institution. No advances may exceed 60 per cent of the unpaid principal or 40 per cent of the actual value of the real estate securing the loan (in certain cases the percentages are 50 and 30, respectively). No advances are to be made if the home-mortgage has more than 15 years to run, or if the value of the real estate exceeds \$20,000, or if the mortgage is six months past due when presented. The Home Loan Banks may borrow money and may issue tax-exempt bonds and debentures.

LAME-DUCK SESSION AMENDMENT

A joint resolution (S.J. Res., 14, deposited in the Department of State, March 3, 1932) proposes to the states a constitutional amendment eliminating the short, or "lame-duck," session of each Congress. According to the proposed amendment, the sessions of Congress shall begin each year at noon on the third of January, at which time, in odd years, the terms of Senators and Representatives will begin. The terms of the President and Vice-President shall begin at noon on the twentieth day of January. If, by that time, the President-elect shall have died, the Vice-President-elect becomes President; if the President has not been chosen by the time fixed for the beginning of his term, or if the President-elect has failed to qualify, the Vice-President-elect is to serve as President until a qualified President has been chosen. If neither the President-elect nor the Vice-President-elect has qualified for office, Congress may provide by law for the emergency. If an election is thrown into Congress, and if one of the persons who is eligible for election dies before a choice is made, Congress may provide a solution to the problem. To become effective, the amendment must be ratified by the legislatures of three-fourths of the states within a period of seven years.

INJUNCTIONS IN LABOR DISPUTES

(H.R. 5315, Pub., No. 65, approved March 23, 1932). This act establishes a comprehensive series of limitations on the issuance by Federal courts of injunctions in labor dispute cases. It is declared to be the public policy of the United States to prevent any restraint upon the right of labor to organize and bargain collectively. In no Federal court may redress be sought for a violation of an employee's agreement not to join or remain a member of a labor organization. No labor dispute injunctions may be issued as a result of any of the following acts: (a) "ceasing or refusing to perform any work or to remain in any relation of employment; (b) becoming or remaining a member of any labor organization or of any employer organization. . . ; (c) paying, or giving to, or withholding from, any person participating or interested in such labor dispute, any strike or unemployment benefits or insurance. . . ; (d) by all lawful means aiding any person participating or interested in any labor dispute who is being proceeded against in, or is prosecuting, any action or suit in any court of the United States or of any state; (e) giving publicity to the existence of, or the facts involved in, any labor dispute, whether by advertising, speaking, patrolling, or by any other method not involving fraud or violence; (f) assembling peaceably to act or to organize to act in promotion of their interests in a labor dispute; (g) advising or notifying any person of an intention to do any of the acts heretofore specified; (h) agreeing with other persons to do or not to do any of the acts heretofore specified, and (i) advising, urging, or otherwise causing or inducing without fraud or violence the acts heretofore specified. . . ." Labor dispute injunctions may be issued when, after a hearing in open court, the court agrees unless a restraining order is issued "that substantial and irreparable injury to complainant's property will follow; that as to each item of relief granted greater injury will be inflicted upon complainant by the denial of relief than would be inflicted

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upon defendants by the granting of the relief; that complainant has no adequate remedy at law; and that the public officers charged with the duty to protect complainant's property are unable or unwilling to furnish adequate protection." Even in these cases, injunctions will be granted only upon the basis of facts found and recorded by the court, and, at the request of either party, the case may be certified for review before the circuit court. Finally, every injunction must be limited to the specific acts complained of in the petition of complaint, and no injunction may be granted unless the complainant has exhausted every "reasonable effort to settle such dispute either by negotiation or with the aid of any available governmental machinery of mediation or voluntary arbitration.

VOCATIONAL REHABILITATION

(H.R. 4743, Pub., No. 222, approved June 30, 1932). This act provides for the annual expenditure, from 1934 to 1937, of \$1,000,000 by the Federal Government for the purpose of aiding the states in programs for the rehabilitation through vocational training of persons disabled in industry. Each

state must appropriate an amount equal to the Federal grant and must secure Federal approval of policies and methods to be followed. Eighty thousand dollars a year is also appropriated for the purpose of enabling the Federal Board for Vocational Education to study and investigate the vocational rehabilitation of disabled persons.

DELAWARE RIVER JOINT COMMISSION

A joint resolution (S.J. Res., 41, Pub. Res., No. 26, approved June 14, 1932) approved the agreement entered into by Pennsylvania and New Jersey constituting a joint commission for the operation and control of the Philadelphia-Camden bridge, development of other means of communication between the cities, and the general development, through the improvement of the Delaware River, of both cities as sea ports. The commission of 16 includes the eight members of the New Jersey Interstate Bridge Commission; the governor, the auditor general, and the treasurer of Pennsylvania; the mayor of Philadelphia, and four additional persons now serving as members of the Pennsylvania commission.

FEDERAL ADMINISTRATIVE COMMISSIONS

BY LLOYD M. SHORT

PROFESSOR, UNIVERSITY OF MISSOURI

THE FEDERAL FARM BOARD

Personnel.—The Senate on March 12 confirmed the nomination of Frank Evans of Utah, William F. Schilling of Minnesota, and Sam H. Thompson of Illinois which had been pending before it for several months. C. B. Denman of Missouri was nominated by President Hoover May 23 for reappointment for a six year term and his nomination was confirmed June 29. On Aug. 9 the President appointed Ernest B. Thomas of Indiana to fill the vacancy created more than a year earlier by the resignation of Samuel R. McKelvie of Nebraska,

the wheat representative on the board.

Disposal of Surplus.—Amid charges that contemplated action was the equivalent of a "dole," the Senate on Jan. 4 voted to donate 40,000,000 bushels of Farm Board wheat to the American Red Cross or to other charitable organizations designated by the President for distribution to needy individuals. On Feb. 24 the Senate voted to distribute an additional 5,000,000 bushels of wheat through the Red Cross to farmers in the drouth and grasshopper stricken states of the Northwest for their families and live stock. Reversing its previous unfavor-

FEDERAL ADMINISTRATIVE COMMISSIONS

able action, the House Committee on Agriculture approved a bill on March 1 by a vote of 15 to 6 which combined the two Senate measures but with a maximum limit of 40,000,000 bushels. This bill was passed by the House two days later by the overwhelming vote of 344 to 2 and was approved by the President on March 7. Two months later the President signed another congressional resolution authorizing the grant of 45,000,000 bushels of wheat and 500,000 bales of cotton to the Red Cross for relief purposes. Congress on July 16 voted an appropriation of \$40,000,000 to retire loans against Farm Board wheat and cotton released to the Red Cross but refused to reimburse the Board's revolving fund in the amount of the Board's equities in these stocks. Confronted with insistent demands that it withhold from the market remaining stores of wheat and cotton, and following negotiations with the Reconstruction Finance Corporation which resulted in a loan of \$50,000,000 to cotton cooperatives and the cotton stabilization corporation for the purpose, the Federal Farm Board announced on Sept. 5 that its holdings of 3,000,000 bushels of cash wheat and approximately 40,000,000 bushels of futures would be held at least until Jan. 1, 1933, and that the 350,000 bales of cotton yet unsold together with 2,000,000 additional bales controlled by cooperatives would be withheld until March 1, 1933, except such as might be sold at 12 or more cents per pound.

Finances.—In its annual report for the fiscal year 1932, the Board stated that the grain stabilization corporation owed the revolving fund \$199,985,284.21 as of June 20 with an additional debt of \$31,481,781.85 to commercial banks and intermediate credit banks. The cost of cotton stabilization operations was placed at \$85,051,477.72 as of June 30. In a press interview Chairman Stone on Dec. 7 estimated the present value of the Board's \$500,000,000 revolving fund to be \$140,000,000. Of the net loss \$43,000,000 resulted from the refusal of Congress to reimburse the Board

for its equities in wheat and cotton granted to the Red Cross.

FEDERAL HOME LOAN BANK BOARD

Establishment.—Another national administrative agency independent of any of the ten executive departments came into being when President Hoover on July 22 signed the \$125,000,000 home loan bank bill. The bill created a Federal Home Loan Bank Board of 5 members to supervise a system of from 8 to 12 regional home loan banks designed to provide credit facilities for member building and loan associations, savings banks, and other institutions making loans for home construction. A minimum capitalization for each bank of \$5,000,000 was to be subscribed by the United States through the Reconstruction Finance Corporation. Additional resources required by the banks were to be secured through the issue of notes and debentures. Member institutions were required to subscribe for stock of the banks with the intent of gradually absorbing their capital and were permitted to borrow upon their own notes secured by home mortgages.

Personnel and Organization.—President Hoover announced on August 6 the personnel of the new Board, which included Franklin W. Fort of Newark, N. J., Republican and former member of Congress, chairman; Nathan Adams, Democrat, of Dallas, Texas; William E. Best, Republican, of Pittsburgh; H. Morton Bodfish, Democrat, of Chicago; and John M. Gries, Republican, Rosewood, O. The members of the Board met on August 9 for the purpose of organization and for the formulation of policies. Announcement was made on August 24 of the formation of the 12 districts, with the amount of capital for each bank and the amount of available mortgages in each district, and three days later the Board announced the location of the 12 banks. The cities were: Cambridge, Mass., Newark, N. J., Pittsburgh, Winston-Salem, N. C., Cincinnati, Indianapolis, Evanston, Ill., Des Moines, Little Rock, Topeka, Kan., Portland, Ore. and Los Angeles. In compliance with the act, the stock

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of the home loan banks was offered for sale for a period of 30 days beginning Sept. 15. Meanwhile at the request of the board, a 60 day moratorium on home mortgage foreclosures by receivers of closed banks was declared by the Comptroller of the Currency and by the banking departments of a large number of states. The banks opened Oct. 15 as scheduled and applications for loans were received but further operations were delayed because capitalization requirements had not been met. Capital requirements for the twelve banks had been set by the Board at \$134,000,000. Since the act limited the government subscription to \$125,000,000, member institutions were required to subscribe at least \$9,000,000. State legislation prohibiting building and loan associations from purchasing stock was the principal cause of the delay. The first loans by the banks were announced Dec. 16, at which time it was stated by Chairman Fort that credits totalling \$11,000,000 had been approved. Twenty-two states had made the necessary changes in their laws to permit building and loan associations to become members of the Home Loan Bank System by the end of the year.

FEDERAL POWER COMMISSION

Regulation of Holding Companies.

—The Federal Power Commission, at the conclusion of a year's investigation, recommended to Congress Sept. 17 Federal regulation of utility holding companies as "absolutely essential in the public interests." Such control to be adequate, it stated, should include in its scope the service organizations of these holding companies, the supervision of all contracts between holding companies and their operating companies, the regulation of accounts with requirements providing for the filing of financial and other reports to insure full publicity, and supervision of the issuance of securities. These recommendations were repeated by the commission in its annual report submitted Nov. 28. The commission on Nov. 15 adopted a resolution providing that no licensee should issue securities with a matur-

ity date of more than one year without first receiving its approval.

FEDERAL RADIO COMMISSION

Personnel.—Ira E. Robinson, member of the Radio Commission for four years, resigned Jan. 15 to enter private law practice. President Hoover nominated Thad Brown of Ohio, general counsel of the Commission, on Jan. 21 to fill the vacancy, and his nomination was confirmed by the Senate. Charles McK. Saltzman, chairman of the Commission, resigned July 19 on account of ill health. Failure of the President to name a successor to Saltzman lent credence to the suggestion that he contemplated a reduction in the membership of the Commission from five to three under authority granted him by Congress to effect consolidations in the interest of national economy.

Radio Interference.—An important general order issued by the Commission to become effective June 22 limits frequency deviation to 50 cycles above or below assigned channels. The old rule allowed a deviation of 500 cycles. Made possible by what was termed by the Commission "the greatest technical advancement in the broadcast transmitter art in recent years," the new order was designed to improve the service rendered by broadcasting stations and materially to reduce the amount of interference.

Radio Advertising.—Growing dissatisfaction with the existing use of radio facilities for purposes of commercial advertising led the Senate on Jan. 12 to adopt a resolution introduced by Senator Couzens calling upon the Radio Commission to study the problem and also to report on the feasibility of government ownership and operation of broadcast facilities. The Commission reported to the Senate June 9 that any plan to eliminate the use of radio for commercial advertising would, if adopted, destroy the present system of broadcasting. Commissioners Saltzman and LaFount dissented from the majority view that additional legislation would be necessary to limit commercial broadcasting programs. The report presented estimates of costs for gov-

ernment ownership, suggested the many problems which would have to be considered, offered its services in the preparation of detailed plans to meet such a policy if deemed advisable, and recommended further study of the subject.

FEDERAL RESERVE BOARD

Credit Expansion.—The Glass-Steagall bill, a non-partisan emergency measure actively supported by the Administration, which liberalized the rediscount privileges of the Federal Reserve System, was approved by President Hoover Feb. 27. There are three important provisions in this act. First, as a permanent feature, member banks which have exhausted their eligible collateral may join with four or more other member banks in obtaining loans from Federal Reserve banks on joint promissory notes. Second, member banks having no further eligible collateral and having a capital of not more than \$5,000,000 may borrow from Reserve banks on promissory notes without participating in a group. All but 62 of the 7,400 member banks may take advantage of this privilege. Finally, Federal Reserve banks may use government bonds as collateral for Federal Reserve notes, thus releasing surplus gold in excess of the 40 per cent reserve requirement being used as collateral because of the shortage of eligible paper. The last two provisions are emergency features and will expire March 3, 1933.

Open-Market Operations.—At the time of the passage of the Glass-Steagall bill the Federal Reserve banks held \$741,000,000 in government securities. During the next six weeks the banks purchased \$245,000,000 "governments" at the rate of approximately \$25,000,000 a week. At a meeting of the Board April 12 it was decided to increase the open-market purchases of the Reserve Banks to approximately \$100,000,000 a week in a determined effort to create such a volume of excess reserves as would force banks to expand their loans and investments. On May 17, five weeks after the open-market policy had been initiated, it was announced by the Board that the pur-

chase of government securities would be continued, the amount to be determined from time to time as conditions justified. During the week ended May 26 purchases declined to \$59,000,000 and the following week to \$50,000,000. This brought the total Reserve bank holdings of "governments" to \$1,575,000,000; \$977,000,000 more than on the same date in 1931. During the entire year the Reserve Banks increased their holdings of governments by \$1,085,000,000 bringing the total held to \$1,851,000,000. Following a conference held early in January, 1933, the Board stated that "the first and immediate objective of the open-market policy was to contribute factors of safety and stability in meeting the forces of deflation. The larger objectives of the policy, to assist and accelerate the forces of economic recovery, are now assuming importance."

Currency Expansion.—By the overwhelming vote of 289 to 60 the House of Representatives on May 2 passed the Goldsborough bill directing the Federal Reserve Board and the Secretary of the Treasury to so control the volume of credit and currency as to restore and maintain the average purchasing power of the dollar as ascertained by the Department of Labor in the wholesale commodity markets for the period from 1921 to 1929. The bill failed to pass the Senate. Moderate currency expansion was provided for in the Glass-Bohrah amendment to the Home Loan Bank Act, approved July 22, which permits national banks for a three-year period to issue currency up to their total capital stock upon the security of government bonds bearing not more than 3½ per cent interest. Previously national bank currency could be issued only on security of 2 per cent consols and Panama Canal bonds. President Hoover objected to this amendment as running counter to the policy of the Reserve Act gradually eliminating an inflexible bond secured currency, but in view of its temporary character did not feel warranted in refusing to approve the important and constructive act to which it had been attached.

FEDERAL TRADE COMMISSION

Utility Investigation.—Further progress was made by the Commission during the year in its investigation of public utility financing. Examiners and accountants for the Commission presented further evidence of "write-ups" in the valuations of the physical properties of utility companies. The Commission won a signal victory in the courts on Aug. 19 when Federal Judge John C. Knox in New York ordered the Electric Bond and Share Company to supply records subpoenaed by the Commission on Oct. 3, 1928, in connection with its investigation of public utility corporations. Judge Knox held that, though the Electric Bond and Share Company might not itself have been engaged in interstate commerce, its subsidiaries had been so engaged and accordingly brought the company within the scope of the investigation. In its annual report submitted Dec. 11, the Commission renewed its recommendation that Congress enact legislation specifically authorizing it to compel companies under investigation to submit any records desired.

INTERSTATE COMMERCE COMMISSION

Railroad Consolidation.—Following a series of hearings held during the early months of 1932, the Interstate Commerce Commission on July 21, with Commissioners Eastman and McManamy dissenting, approved the four-party merger proposed by Eastern roads, subject to substantial modifications particularly in the New England area. The conditions laid down by the Commission were accepted by the executive heads of the roads concerned at a meeting in New York on Sept. 23. On Jan. 12, the Commission, over the protest of other lines serving the southwest, authorized the Southern Pacific, largest of all American transportation systems, to acquire the St. Louis Southwestern Railway (Cotton Belt). The Southern Pacific notified the Commission March 7 it would accept the terms upon which the merger was approved, and on March 14, the Commission denied a petition of the Missouri Pacific

and the Texas and Pacific Railroads for a reconsideration.

Grain Rate Case.—The Supreme Court on Jan. 4 set aside the reduced freight rates on grain which the Interstate Commerce Commission ordered in August, 1931, as a result of its investigation of grain rates under the Hoch-Smith resolution of 1925. The court accepted the plea of western lines that steady declines in rail traffic made it impossible for them to bear the loss of revenue resulting from the lowered rates on grain. Following this decision and upon application of western carriers, the Commission authorized Jan. 23 the reinstallation of rates in effect prior to August, 1931. A new investigation of grain rates in the light of changed economic conditions was initiated Feb. 9.

Freight Rate Increase.—At the annual session of the Association of Railway Executives held in New York Nov. 11 it was decided to ask the Interstate Commerce Commission to continue in effect the increase in freight rates allowed by the Commission beginning in January, 1932, which unless otherwise ordered would automatically terminate March 31, 1933. It was decided also to request that the pooling arrangement decreed by the Commission be discontinued. On petition of the Association, the Commission on Dec. 17 ordered a new study of the freight rate situation and hearings were begun Dec. 28. So few requests have been received for the privilege of testifying at these hearings, it was anticipated the case would be closed early in January, 1933. The Railroad Credit Corporation, organized by the carriers in December, 1931, to make loans to roads for the payment of interest and other fixed charges out of revenues secured from increased freight rates, reported Jan. 3, 1933, that \$52,201,092 had been received from the carriers during the first 10 months of 1932, and that 57 railroads had applied for loans aggregating \$105,990,446 of which \$48,324,919 had been approved and the balance removed from the docket as being receivable from other sources, chiefly

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the Reconstruction Finance Corporation. Loans totalling \$1,210,287 had been repaid and pending applications totalled \$2,301,119.

RECONSTRUCTION FINANCE CORPORATION

Establishment.—On Jan. 22 at 6:06 P. M., within one minute after it had reached his desk, President Hoover signed the bill creating the Reconstruction Finance Corporation, a \$2,000,000,000 credit agency designed to provide emergency financing facilities for business and agriculture. The Corporation was provided with a cash capital of \$500,000,000 from the United States Treasury and in addition was authorized to issue debentures in the amount of \$1,500,000,000 secured by its own assets but guaranteed both as to principal and interest by the United States Government. In addition to banks and other credit institutions, the Corporation was empowered to make loans to railroads, to exporters of agricultural products, and to farmers for 1932 crop production.

Personnel and Organization.—The act creating the Corporation provided for a board of seven directors, including the Governor of the Federal Reserve Board, the Secretary of the Treasury, and the Farm Loan Commissioner of the Federal Farm Loan Board serving *ex-officio*, and four others to be appointed by the President with the advice and consent of the Senate. On Jan. 20, two days before the bill was received from Congress, President Hoover announced the selection of Charles G. Dawes, ambassador to Great Britain and former Vice-President of the United States, to be the first president of the new corporation. Accompanying this announcement the President stated that Eugene Meyer, Governor of the Federal Reserve Board, would serve as chairman of the board of directors. After conferences with Democratic leaders in Congress the President nominated Harvey C. Couch of Pine Bluff, Ark., and Jesse H. Jones of Houston, Tex., on Jan. 25 as two of the three Democratic members of the board. These men, together with

Dawes, were confirmed by the Senate three days later with little debate and but one roll call, the vote on Couch being 70 to 10. Wilson McCarthy of Salt Lake City was named Jan. 29 as the seventh director and he was confirmed by the Senate a few days later. The board met Feb. 2 to elect officers, and formulate plans for organization and procedure. By April 1, the date of its first report to Congress, the board had completed its staff and field organization. The latter included 33 branch agencies in charge of regional managers with an advisory committee for each district.

Dawes resigned as president of the corporation June 6, effective June 15. Gardner Cowles of Iowa was appointed by President Hoover June 23 to fill the vacancy on the board, but the post of president, which need not be filled by a member of the board, was left vacant. The membership of the board was altered by Congress in the unemployment relief act approved July 21, two additional appointive directors being substituted for the Governor of the Federal Reserve Board and the Federal Farm Loan Commissioner who had served *ex-officio*. President Hoover announced July 26 the appointment of Atlee Pomerene, Democrat and former United States Senator from Ohio, as a member of the board to succeed Eugene Meyer as its chairman. Charles A. Miller, Republican, lawyer-banker of Utica, N. Y., was named July 28 as the seventh member of the board and the new President of the Corporation.

Loans.—During the period from Feb. 2 through June 30, the Corporation authorized loans aggregating \$1,054,814,486 to 4,196 institutions and companies. Actual advances totalled \$805,150,006 of which \$76,488,199 had been repaid. Banks and railroad companies received more than 80 per cent of the loans authorized. \$85,000,000 had been allocated to the Secretary of Agriculture for crop loans. The Emergency Relief and Reconstruction Act, approved July 21, made available through the Reconstruction Finance Corporation \$300,000,000 for loans to states, counties, and cities,

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upon application of the state governors, for individual relief, and \$1,500,000,000 for loans to governmental agencies and building corporations for self-liquidating construction projects to provide unemployment relief. This act also directed the R. F. C. to establish regional agricultural credit corporations, each with a minimum capitalization of \$3,000,000 advanced by the Corporation from that portion of its fund designated for the benefit of agriculture. The number of these credit agencies and the exact definition of their functions was left to the discretion of the Corporation. The primary purpose of the credit corporations is to advance funds to aid growers of feeder livestock and those engaged in the production and marketing of grain and dairy products. The R. F. C. reported Oct. 24 the creation of the eleventh of twelve regional agricultural credit corporations which it planned to establish. In its report issued Dec. 30, covering operations to Nov. 30, the R. F. C. announced authorization of loans to all classes of borrowers totalling \$1,844,252,176. Of this amount, \$1,541,906,876 had been promised to 6,494 financial institutions and railroads. \$108,000,000 had been authorized for emergency relief in 36 states and 2 territories, and \$146,500,000 had been approved for self-liquidating construction. A total of \$64,204,503 had been loaned to farmers by the Secretary of Agriculture for crop production and \$52,104,357 had been authorized for agricultural marketing organizations. Finally, the several regional agricultural credit corporations had advanced \$8,610,082 to farmers and stock breeders. Of the total amount loaned by the Corporation, \$283,049,000 had been repaid of which \$233,587,000 was received from banks. Acting upon authority granted him in the act creating the Corporation, President Hoover on Dec. 8 extended its powers to make loans for an additional year, or until Jan. 22, 1934.

THE TARIFF COMMISSION

Personnel.—The Senate on Feb. 9 approved the appointment of Ira M.

Ornburn as a member of the Tariff Commission by a vote of 70 to 9. Robert L. O'Brien was confirmed as chairman of the commission the same day without a record vote. The re-nomination of Edgar B. Brossard was confirmed July 7 after a motion to recommit had been rejected 31 to 25. The vacancy caused by the death of Lincoln Dixon was filled by the appointment on Sept. 27 of Charles R. Crisp, acting chairman of the House Ways and Means Committee during the first session of the Seventy-second Congress. After serving less than three months under his recess appointment, Crisp resigned to enter private law practice.

Flexible Tariff.—A tariff bill initiated by Democratic members of the House Ways and Means Committee which repealed the flexible tariff clause in the existing law authorizing the President to alter tariff duties upon recommendation of the Tariff Commission, substituting therefor Congressional approval of changes proposed by the Commission, passed both Houses of Congress but, as was expected, President Hoover vetoed the bill, and the House on May 11 by a vote of 178 to 166 failed to secure the two-thirds necessary to override the veto.

Summary of Activities.—Completing two years of work under the Smoot-Hawley Tariff Act of 1930, the Tariff Commission on June 18 announced that duties had been decreased on imports valued at approximately \$14,000,000 and increased on \$9,000,000 worth. Rates were left unchanged on \$52,000,000 of imports. Forty-two completed investigations were reported to the President and 14 special studies for Congress or general surveys undertaken on the Commission's own initiative were made. Based on the Commission's work, the President had proclaimed 31 tariff changes, 13 increases and 18 decreases. Rates on 42 commodities were left unchanged. An important new investigation was authorized when the Senate on April 12 directed that both the Commission and a special committee of the Senate should make thor-

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ough studies of the effect of depreciated foreign currencies upon American trade. Charges of extensive dumping of foreign goods into the United

States led President Hoover on Oct. 21 to urge the Tariff Commission to focus its attention upon the investigation as authorized by the Senate.

THE SUPREME COURT AND CONSTITUTIONAL LAW

BY THOMAS REED POWELL

PROFESSOR, HARVARD UNIVERSITY LAW SCHOOL

THE SHIFTING BALANCE OF THE COURT

Chief Justice Hughes and Justice Roberts.—The nature of the function which the Supreme Court of the United States performs in applying constitutional limitations to state and national legislation is best discerned in the cases in which the judges are divided. When the same alignment of justices appear in case after case, however varying the technical issues involved, it becomes apparent that the general outlook of individual justices has often a determining influence in the discovery of what the Constitution means. The October 1930 term was the first in which Chief Justice Hughes and Justice Roberts participated from the beginning. Their attitude was sufficiently different from that of Chief Justice Taft and Justice Sanford, who preceded them, to indicate to many observers that the balance in the court had shifted. The two new members of the court joined with Justices Holmes, Brandeis and Stone in sustaining discriminatory taxation of chain stores and regulation of the commissions of insurance agents, and in condemning the California "Red Flag" law and the Minnesota "Gag Law." In other cases, too, their influence turned the course of decision in a different direction from that which it had been taking when Justices Van Devanter, McReynolds, Sutherland and Butler had been able so often to secure the concurrence of Chief Justice Taft and Justice Sanford or of one or the other of them.

Intellectual Complexion of the Bench.—The most interesting question raised by the decisions of the

succeeding October, 1931, term was whether this apparent shift of the balance of the court was to be maintained. On Jan. 11, 1932, Justice Holmes resigned and brought to a close his long and unrivalled judicial service. His successor, Justice Cardozo, joined the court on March 14. In this term of court there were 26 cases in which the court was divided. In 12 of these cases, Justices Brandeis and Stone dissented. In four cases they were joined by Justice Holmes, and in three cases by Justice Cardozo. In the other five cases, neither Justice Holmes nor Justice Cardozo sat. In all of these cases the majority consisted of Chief Justice Hughes and Justices Van Devanter, McReynolds, Sutherland and Butler, with Justice Roberts joining them in all but two cases. This evidence, if it were all, would indicate that the intellectual complexion of the bench has remained largely unaffected by the last three changes in its membership.

Changing Course of Decision.—If, however, we turn to the cases in which Justices Brandeis and Stone were in a majority with Chief Justice Hughes and Justice Roberts, we find only one in which Justices Van Devanter, McReynolds, Sutherland and Butler united in dissent. This was *Nixon v. Condon*, (286 U. S. 73), which condemned the action of a party committee in excluding Negroes from a party primary. How the case would have been decided in the days of Chief Justice Taft and Justice Sanford must remain a matter of speculation. Not so with *Pacific Co. v. Johnson*, (285 U. S. 480), which cemented the reversal of a line of decision on excise taxes measured by exempt income

in which these two former members of the court had joined in giving unprecedented privileges to taxpayers. Here the determining influence of Chief Justice Hughes and Justice Roberts is unmistakable, even though Justice McReynolds reversed himself to join with them. So also is it in *Fox Film Corporation v. Doyal*, (286 U. S. 123), which permitted state taxation of income from copyrights and unanimously overruled *Long v. Rockwood*, (277 U. S. 142), which had forbidden state taxation of income from patents.

It is not unlikely that there are other cases in which Justices Van Devanter, McReynolds, Sutherland and Butler have refrained from dissent although they would have voted the other way in the days when Chief Justice Taft and Justice Sanford were so often voting with them to make a majority. Thus the new court has moved somewhat away from the extreme left position occupied by its predecessor even though we still find Justices Brandeis, Stone and Cardozo often unable to get two colleagues to join them.

DECISIONS ON STATE POLICE POWER

Ice Manufacturing Limitations.—

The most far-reaching decision of the term is *New State Ice Co. v. Liebmann*, (U. S. 262), in which a majority of the court held that a state cannot confine the business of manufacturing and distributing ice to those who can satisfy a commission that there is necessity for such an enterprise in the place proposed. The majority go on the general ground that this is an ordinary business and not one "affected with a public interest" and that it, therefore, must be open to all. In an elaborate dissent, Justice Brandeis reviews extensively the recent literature showing the economic evils of unrestricted free enterprise and insists that contemporary conditions too well known to all make it impossible for a court to say that it is arbitrary or unreasonable for a legislature to seek to prevent the waste and catastrophe that indiscriminate individual initiative may serve to bring about.

Prorating Oil and Natural Gas.—

On the other hand a different attitude was taken toward restriction of the production of oil and natural gas in the two unanimous decisions of *Bandini Petroleum Co. v. Superior Court*, (284 U. S. 8), and *Champlin Refining Co. v. Corporation Commission*, (286 U. S. 210), which sanction plans for prorating production so as to prevent not only physical but economic waste. While the court reserves the question of limitation of production for the express purpose of fostering price, it seems not unlikely that something of this may be accomplished under the guise of preventing "waste incident to the production in excess of transportation or marketing facilities or reasonable market demands."

Party Primary Franchise.—It had previously been established that state legislation excluding Negroes from participation in party primaries is an unconstitutional denial of the equal protection of the laws. Texas sought to avoid this restriction on state action by vesting in a party committee the power to decide who should vote in party primaries. By a 5—4 vote, *Nixon v. Condon*, (286 U. S. 73), the Supreme Court held that the action of the party committee is action by the state and, therefore, within the constitutional prohibitions.

State Governors and New Congressional Districts.—In *Smiley v. Holm*, (285 U. S. 355), it was held that a state governor is entitled to participate in the process of establishing congressional districts wherever he is made a part of the legislative power by the state constitution. The Constitution provides that, subject to Congressional control, the "Places" shall be prescribed "in each State by the Legislature thereof." Legislature was held to mean "the legislative power." By this and two other decisions, three state provisions were declared null for non-participation by the governor. The result, in the absence of further valid state action, varied according to the effect of Congressional reapportionment on the state representation. Where the number of representatives was decreased, all the representatives had to be elected at large. Where the

representation was increased, the old districts chose one representative each, and the additional representatives were chosen at large.

Workmen's Compensation.—An important decision on the scope of workmen's compensation legislation was rendered in *Bradford Electric Light Co. v. Clapper*, (286 U. S. 145), which held applicable to extra-state injuries an elective compensation law which had been accepted by employer and employee as a term of the contract of employment. The decision may be confined to cases in which the residence of the parties and the main employment are in the state in which the compensation statute has been accepted. In the case at bar the outside employment was only for temporary and specific purposes. For a death in this other state, an administratrix sought to sue at common law as the compensation statute of that state permitted. This was negatived by the Supreme Court on the ground that it denied full faith and credit to the compensation statute of the state of general employment, under which the compensation under the Act was the exclusive remedy.

State Regulation of Rates.—The only decision relating to state regulation of rates is *Western Distributing Co. v. Public Service Commission*, (285 U. S. 119), which was confined to the ruling that a distributing company seeking an increase of rates must establish the fairness of the price paid by it for gas purchased from a pipe line company, even though that price is a matter of interstate commerce and so not subject to direct state control. It is noticeable that in these days of depressed commodity prices, the utilities are not rushing to the courts to invoke the once favorable rule that present reproduction cost must be given great weight in ascertaining the "fair value" upon which they are entitled to earn a "fair return."

DECISIONS ON STATE TAXATION

Inheritance Tax.—In recent years the Court has been disregarding or overruling previously settled authority sanctioning state inheritance taxation

on varying bases that resulted in the possibility of multiple taxes on the same estate and some of the Justices have been inventing and declaring new principles designed to avoid double taxation. The most recent nail in the coffin of the earlier latitudinarian attitude is *First National Bank v. Maine*, (284 U. S. 312), which held that a state inheritance tax cannot apply to the stock of domestic corporations belonging to the estate of a non-resident decedent.

Double Taxation of Income.—On the other hand it seems that the Court is to continue to allow bi-state double taxation of income, for in *Lawrence v. State Tax Commission*, (286 U. S. 276), the state of domicile was allowed to tax the total income of an individual citizen though derived in part from sources outside the state, and there was no indication of an intention to abandon the established position that such income is taxable in the state in which it is earned. Recent developments had led some commentators to assume that domiciliary taxation of extra-state income would meet with judicial condemnation, and the failure of their prophecy may indicate a recession of the tide that for some time had been rising to the advantage of taxpayers.

Husband-Wife Income Tax.—No recession is to be discerned in *Hooper v. Tax Commission*, (284 U. S. 206), which held that a state cannot tax a husband on the combined total of his and his wife's income as shown by separate returns, where her income is her separate property, and where by reason of the graduated rate the tax on the husband for the combined incomes is greater than would have been due had the incomes been separately assessed. Whether this decision will frustrate other methods of applying a progressive rate to the combined incomes of spouses is not certain, since the Wisconsin statute condemned by the Court did not divide the tax but imposed it all on the husband.

State Tax Exemption.—Mention has already been made of *Pacific Co. v. Johnson*, (285 U. S. 480), which held that a contract exempting designated income from state taxation is not im-

paired by including such income in the assessment of a corporate excise on the privilege of doing business in the state. The case shows clearly that it will be followed with respect to income immune from direct state taxation by reason of the fact that it is derived from the Federal Government. Its underlying attitude finds a companion in *Fox Film Corporation v. Doyal*, (286 U. S. 123), which reestablishes state power to tax income from patents and copyrights. These two decisions put an end to anomalies introduced during the closing years of the tenure of Chief Justice Taft and restored part of the law to its earlier state.

Complaints founded on the commerce clause brought six cases to the court. The taxpayer was successful only in *State Tax Commission v. Interstate Natural Gas Co.*, (284 U. S. 41), which denied the power of the state to impose a privilege tax on foreign corporations delivering natural gas from without the state to distributors within the state, even though the pressure is reduced before the gas passes to the pipes of the purchasers. On the other hand, states were allowed to tax the generation of electricity even though transmission to another state may be physically integrated with the generation (*Utah Power & Light Co. v. Pfof*, 286 U. S. 165), to tax sales of gasoline for use by air transport lines engaged in interstate commerce (*Eastern Air Transport v. South Carolina*, 285 U. S. 147) and to tax gasoline stored within the state after shipment from outside, where substantially equal taxation is imposed on gasoline of domestic origin (*Gregg Dyeing Co. v. Query*, 286 U. S. 472). The remaining case is *McCormick & Co. v. Brown*, (286 U. S. 131), which allowed a state to impose an annual license fee on non-resident manufacturers and wholesalers of intoxicating liquor as a condition precedent to shipping it into the state. The decision is based upon the permission contained in the Webb Kenyon Act which the Court declares to be still in force and to be applicable to intoxicating liquor not for beverage purposes and not obnoxious

to the Eighteenth Amendment or the National Prohibition Act.

DECISIONS ON NATIONAL POWERS

Most of the important decisions in this field are too complicated to admit of summary statement. Administrative commissions have been curtailed in the exercise of powers assumed by them in cases which divided the Court and will cause lawyers to quarrel over their scope and effect for some years to come. Under broad clauses in Federal statutes the Court has rendered important decisions dictated often by judicial policy but not based explicitly on constitutional grounds. The issue of the power of the Senate to reconsider confirmation of Presidential nominees after notification of confirmation to him and issue of commission by him was decided against the Senate on the basis of the Senate rules without going into issues of constitutional law. In the field of national legislation the work of the Court tends to be concerned predominantly with statutory interpretation rather than with the application of constitutional limitations.

A few constitutional rulings may be briefly noted. Congress may not provide that gifts made within two years of death shall be conclusively presumed to be made in contemplation of death (*Heiner v. Donnan*, 284 U. S. 312). The United States cannot tax the income of lessees of state school lands where under the state law the lease does not amount to a sale of the oil or gas (*Burnet v. Coronado Oil & Gas Co.*, 286 U. S. 393). The adjournment of Congress does not end the power of the President to approve bills previously presented to him, but this power continues for ten days (Sundays excepted) after adjournment (*Edwards v. United States*, 286 U. S. 482). Citizens of the United States may upon proper notice be summoned to return to the United States to testify in criminal proceedings (*Blackmer v. United States*, 284 U. S. 421), and failure to comply with the subpoena may be punished by forfeiture of property duly seized within the United States.

THE PROHIBITION CONTROVERSY

THE PROHIBITION CONTROVERSY

BY IRVING FISHER

PROFESSOR, YALE UNIVERSITY

INTRODUCTORY

The year 1932 was marked by a general revulsion against the Prohibition régime, in which prominent drys of the type of John D. Rockefeller, Jr., favored repeal or modification of the Eighteenth Amendment toward state control. The wets were emboldened to unite their organizations during the Presidential campaign, supporting the successful Democratic candidacy of Franklin D. Roosevelt who indorsed his party's platform for repeal of the amendment and modification of the Volstead Act. But in the holdover Congress following his election, the movement for repeal was defeated, although the House passed a bill to legalize the sale of beer of 3.2 per cent alcoholic content by weight, which was pending in the Senate as the year closed.

CHANGED DRY SENTIMENT

John D. Rockefeller, Jr., on June 6, declared that he favored repeal of the Eighteenth Amendment, in a letter addressed to President Nicholas Murray Butler of Columbia University; Mr. Rockefeller indorsed Dr. Butler's proposal that Congress submit the question of repeal to the people. This called for ratification of repeal by conventions of the people of the several states, in accordance with the provisions of Article V of the Federal Constitution. This pronouncement, coming from one of the most liberal contributors to the Anti-Saloon League and a leader of the Baptist Church, influenced immediately the rank and file of religious organizations. Bishop Joseph James Cannon, Jr., of the Methodist Episcopal Church and spokesman of the Allied Dry Forces for Prohibition, asserted, June 22, that the dry forces were "just as willing as the wettest of the wet to have the people speak on Prohibition." Rev. Dr. Charles H. Parkhurst of New

York, long foe to the liquor traffic, declared Aug. 8, that "this particular question of liquor should be voted on without more delay by all the people." William G. McAdoo, dry political leader of California, said June 9, that the "people themselves should be given an opportunity to vote through a national referendum authorized by act of Congress," and Dr. John R. Mott, President of the American Missionary Council and of the World's Alliance of the Y. M. C. A., assented to this proposal. The Anti-Saloon League and the Woman's Christian Temperance Union held to their position of unqualified allegiance to the Eighteenth Amendment and the Volstead Act, but it was clear to the nation that a deep breach had been made in the Prohibition ranks.

WET PROPAGANDA

Of this breach the organized wets took speedy advantage. On the day following Mr. Rockefeller's pronouncement, leaders of six national anti-Prohibition organizations met in New York and formed the United Repeal Council, headed by Pierre S. duPont of Delaware, with the avowed purpose of presenting planks in both the Republican and Democratic national platforms calling for repeal. Jouett Shouse, President of the Association Against the Eighteenth Amendment, listed on Sept. 14, what he called five "outstanding" benefits to business that would be accomplished by repeal. These were:

"First, to relieve the national burden by enabling the Federal and State Governments to collect proper revenues on legalized sale of intoxicating beverages.

"Second, to reduce the cost of national and state governments to the extent of tens of millions of dollars, relieving them of the present necessity to attempt to enforce a non-enforceable law.

"Third, to restore the respect for

all laws which the illicit liquor industry has broken down, with its consequent loss to legitimate business.

"Fourth, to relieve officials of the Federal and State Governments from the necessity to combat racketeers and gunmen who have been lured by the richest prize that the underworld has ever enjoyed.

"Fifth, to take away from the Federal courts the intolerable confusion of their dockets made necessary by the attempt to enforce a police statute through the agencies of the Federal Government."

The anti-Prohibition sentiment of ten representative eastern colleges and universities was shown by a poll, published June 1, conducted by the *Daily Princetonian* at Princeton University; only 489 of the 10,027 ballots favored continuance of the present Prohibition Law, and 4,073 were in favor of a plan of complete repeal, while 2,107 voted for a national referendum. At its annual convention September 15th, the American Legion voted by 1,145 delegates to 133, for immediate repeal of the Volstead Act and submission to the people for repeal of the amendment. The convention of the American Federation of Labor at Cincinnati, Nov. 30, for the first time called for repeal of the Eighteenth Amendment, and also for modification of the Volstead Act to permit the sale of a "wholesome, palatable beverage non-intoxicating in fact."

CAMPAIGN AND ELECTION OF A WET PRESIDENT

Republican Platform.—The pronounced change in dry sentiment found expression in the Republican National platform, June 15, which prescribed that Congress promptly submit to state conventions, not legislatures, a new Constitutional amendment on the liquor traffic which would permit choice by the states whether liquor should be manufactured, transported, and sold within their respective borders. It provided that all existing safeguards for states which might wish to remain dry be retained, and pledged

Constitutional protection for dry states.

President Hoover's Statement.—Assenting to his party's plank President Hoover said, August 11, in his speech accepting renomination: "It is my belief that in order to remedy present evils a change is necessary by which we resumption a proper share of initiative and responsibility which the very essence of our government demands, which rests upon the states and local authorities. That change must avoid the return of the saloon. It is my conviction that the nature of this change, and one upon which all reasonable people can find common ground, is that each state should be given the right to deal with the problem as it may determine, but subject to absolute guarantees in the Constitution of the United States to protect each state from interference and invasion by its neighbors, and that in no part of the United States shall there be a return of the saloon system with its inevitable political and social corruption and its organized interference with other states and other communities."

Democratic Platform.—The plank of the National Democratic platform adopted June 30, reads:

"We favor repeal of the Eighteenth Amendment.

"To effect such repeal, we demand that the Congress immediately propose a Constitutional amendment to representative conventions in the states, called to act solely on that proposal.

"We urge the enactment of such measures by the several states as will actually promote temperance, effectively prevent the return of the saloon, and bring the liquor traffic into the open under complete supervision and control by the states.

"We demand that the Federal Government effectively exercise its power to enable the states to protect themselves against importation of intoxicating liquors in violation of their laws.

"Pending repeal, we favor immediate modification of the Volstead Act to legalize the manufacture and sale of beer and other beverages of such

THE PROHIBITION CONTROVERSY

alcoholic content as is permissible under the Constitution, and to provide therefrom a proper and needed revenue."

Roosevelt Statement.—In his acceptance speech at Chicago, July 2nd, Franklin D. Roosevelt said: "This convention wants repeal. Its candidate wants repeal. And I am confident that the United States of America wants repeal. . . . I say to you now that from this date on, the Eighteenth Amendment is doomed. When that happens, we as Democrats must and will, rightly and morally, enable the states to protect themselves against the importation of intoxicating liquor where such importation may violate their state laws. We must, rightly and morally, prevent the return of the saloon." Of this address by Mr. Roosevelt the National Woman's Christian Temperance Union said in a statement issued August 31, that it "constitutes a surrender to the lower powers."

Senator Borah's View.—*Zion's Herald*, of Boston, Sept. 21, quoted Senator Borah as saying, in a letter on the Republican and Democratic platforms, that "those who are in favor of the Eighteenth Amendment have been adroitly and effectually disfranchised, so far as the Republican election is concerned." Both platforms, in Senator Borah's opinion, "in practical effect mean the repeal of the Eighteenth Amendment."

Scott McBride, General Superintendent of the Anti-Saloon League, said Aug. 13: "Our major task as to the coming campaign is clearly presented in the election of Congressmen, who in the last analysis have sole responsibility for amending the Constitution. We will not support those candidates who stand definitely committed to either repeal or modification."

Poling.—On the other hand Rev. Dr. Daniel A. Poling, Chairman of the Allied Dry Forces for Prohibition, declared Aug. 23, that the more liberal dries of the country would campaign actively for re-election of President Hoover.

ELECTION RESULTS

Congress.—In a dispatch to *The New York Times*, Nov. 11, it was reported that 98 dry members of the House and 7 dry Senators had been defeated for re-election to the Seventy-third Congress. Only 37 wet members of the House failed of re-election, and of these 20 Republicans were beaten in the Democratic landslide, while 11 members failed of re-nomination in the primaries and six retired. Only 3 wet Senators failed of re-election, 3 were beaten in the primaries, and 1 retired voluntarily.

States.—In the states, also, wet victories predominated. Eleven States held Prohibition referenda, including Louisiana, Michigan, New Jersey, California, Washington, Oregon, Colorado, Arizona, North Dakota, Connecticut, and Wyoming. Arizona, Louisiana and Colorado repealed their Prohibition Acts, the latter authorizing its legislature to provide for manufacture and sale of liquor in event of repeal of the Eighteenth Amendment. Washington, Michigan and California repealed their enforcement measures, while California adopted a Constitutional amendment to regulate the liquor traffic in event of repeal or modification. In the absence of enforcement acts these States joined Maryland, Massachusetts, Montana, Nevada, New York, and Wisconsin.

ANTICIPATIONS OF CHANGE

Attorney-General's Annual Report.—In his annual report to Congress, Dec. 7, Attorney-General William J. Mitchell urged quick, decisive action if changes were to be made in the national Prohibition system. "Scuttling" of present laws by refusing to appropriate money to enforce them, Mr. Mitchell said, would create an intolerable situation of disrespect for law.

The Situation in the States.—A survey by the United Press showed that Governors, prospective governors and other state officials were preparing to combat problems which would be thrust upon them by legalization of beer. In states without enforce-

ment laws, local ordinances were in many cases still on the books, as in pre-prohibition days. Officials indicated that legislatures meeting during the winter were expected to take action anticipating repeal or modification to prevent anarchic conditions following Federal action. It was understood, however, that in no state defining what liquor was intoxicating would a new Federal definition make a change, except that a state might not legalize any beverage of greater alcoholic content than Congress permitted; it might, however, apply a stricter definition and be protected against outside shipments. Jouett Shouse, President of the Association Against the Prohibition Amendment, predicted Sept. 14, that 15 states would provide for legal liquor sales in event of repeal of the amendment, while the "other thirty-one states will probably retain their prohibition laws for some time."

Brewers and Wine Dealers.—The brewers and wine dealers were making preliminary efforts. With orders for delivery of \$2,500,000 worth of wine, when and if the Volstead Act should be modified to permit its sale, the largest importer of wines had mailed, by Nov. 16, to its salesmen throughout the country the first wine catalog published since 1918. By Dec. 16, about half of the 43 brewers in New York City listed in the 1918 edition of the *Brewers' Handbook*, were preparing to resume sales of real beer on expected legalization of the process, and they contemplated spending millions of dollars on furnishing and modernizing their plants.

Political Aspect.—Meanwhile the movement for legalization of wine and beer at the short session of the holdover Congress, received a blow with intelligence that a modification measure passed prior to change of the Eighteenth Amendment would probably be vetoed by President Hoover. The extreme dry forces, taking heart, prepared to fight the issue during 1933, and the Board of Directors of the Anti-Saloon League of America decided, Dec. 10, to call during February, 1933, a national conference of

prohibition organizations to "mobilize the dry sentiment of America and defeat" the repeal and modification movements.

LEGISLATION

Garner Resolution.—Vice President-elect Garner, as Speaker of the holdover House, prepared Nov. 28, a resolution calling for outright repeal of the Eighteenth Amendment, which was rejected, Dec. 2, by the House Judiciary Committee by a vote of 13 to 6. Introduced on the floor of the House Dec. 5, the Garner bill was defeated by a vote of 272 for and 144 against, lacking 6 votes of the needed two-thirds majority to send it to the Senate. The measure however, received a majority from both the Republican and Democratic sides of the House.

Ways and Means Committee Hearing.—In the hearing before the Ways and Means Committee on the beer bill, levying revenue of \$5 a barrel on beer of a permitted alcoholic content of 3.2 per cent, by weight, Secretary of the Treasury Mills furnished the committee estimates that this would produce \$125,000,000 to \$150,000,000 a year in revenue. The wine feature of the bill he deemed impossible, because it included no "working definition of what liquors are to be subject to the tax." On Dec. 15 the committee voted, 17 to 7, for the bill permitting beer, but turned down the provision for wine by 14 to 9. Seven members of the committee made separate Democratic and Republican minority reports, holding that evidence before the committee showed 3.2 per cent beer to be intoxicating, and that this could not be legalized under their oaths of office until the Eighteenth Amendment should be changed. The majority report quoted estimates that the brewing industry would return 75,000 men to work and stimulate employment of 225,000 more men in allied industries; brewers had promised, it stated, to spend \$360,000,000 in capital investments for rehabilitation and remodeling within a year. It was figured, also, that the per-

THE PROHIBITION CONTROVERSY

capita consumption of beer before Prohibition, in states where sales had been allowed, reached 24.42 gallons; this estimate, if applied to states where it might now be sold, under the increased population would total about 60,000,000 gallons. The committee estimated the annual yield on this estimate at \$300,000,000.

House Passes Collier Bill.—By a vote of 230 to 165, Dec. 21, the House passed the Collier beer bill; thus reversing the action it had taken in May, which voted by 228 to 165 against legalization of 2.75 per cent beer. It was the first outright victory by the wets since the Eighteenth Amendment was submitted by Congress 15 years previously.

Senate Action.—The Senate voted, 48 to 23, against a motion made on Dec. 23, to take up a bill written by Senator Bingham, for which the House beer bill would have been substituted. This postponed its consideration until after the Christmas recess.

ENFORCEMENT

Woodcock Statement.—The demand for repeal of the Eighteenth Amendment, made by John D. Rockefeller, Jr., was officially answered, June 28, by Col. Amos W. W. Woodcock, Prohibition Director, challenging the Rockefeller charge that drunkenness had increased. Colonel Woodcock said: "A survey made of the possible production of alcoholic liquor in the United States for the fiscal year ended June 30, 1930, indicates that the consumption of liquor in that year was materially less than the last year of unrestricted sale of liquor (1914) before wartime restrictions and national Prohibition became effective. . . . Assuming that all the illegal liquor that might have been made in 1920 to 1930, was actually made and consumed, it would amount to only about one-third of the amount known to have been consumed in 1914." Commenting on the two years of enforcement under the Department of Justice, Colonel Woodcock said, June 29: "I think there has been

vast improvement in morale, conduct, training and efficiency. The Bureau is doing an admittedly difficult task honestly, earnestly and lawfully, and with a force of only one man for each 55,000 inhabitants." He added that during eleven months of the fiscal year then ended, the Bureau had made 82,242 cases as against 76,546 for the same period of the preceding fiscal year. During the more recent eleven-months period, 11,567 automobiles have been seized as compared with 8,985 during the former period; 23,714 stills had been captured, against 23,562; 8,878 permanent injunctions had been granted, against 6,428; convictions in Federal courts had increased from 85.9 per cent for the earlier period to 89.6 per cent for the more recent period. "I think this latter figure," Colonel Woodcock remarked, "is not approached in any other branch of criminal law. It is also interesting to note that on June 30, 1930, there were 21,820 Prohibition cases on the dockets of the Federal courts, while on May 31, 1932, in spite of the enormous increase of activity, there were only 18,126 cases remaining. We will turn back into the Treasury this year about \$300,000 of our appropriations, as against about \$160,000 last year. Fines imposed during the eleven months of the year aggregate \$7,354,891, as against \$6,698,528 last year."

Attorney-General Mitchell on August 14, sent a circular to all officials and agents of the Department of Justice, saying that "suggestion has already been openly made to the Department by those who should know better, that because some changes in the Prohibition system are under discussion and may be adopted, the Department of Justice should relax its efforts to enforce the existing laws. Such a course is unthinkable. It is our duty to take the law as we find it, and enforce it as it stands. Aside from this rigid view of official duty, there are other reasons which must appeal to every thoughtful citizen truly interested in the public welfare. So long as the present Constitutional and statutory provisions remain in

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effect, it is impossible for state governments to legalize and regulate the liquor traffic. To relax in the enforcement of the Federal law without substitution of any lawful state control would produce chaos, and an orgy of uncontrolled excesses. Regardless of one's views on Prohibition there should be no difference of opinion on this point."

ELECTION STATISTICS FOR 1932

BY THOMAS N. HOOVER

PROFESSOR, OHIO UNIVERSITY

ALABAMA

U. S. Senator

Hugo L. Black, D.	209,614
J. Theodore Johnson, R.	83,425

Representatives in Congress

1. John McDuffie, D.	20,675
2. Lister Hill, D.	28,250
Frank Barchard, Sr., R.	1,118
W. H. Edwards, S.	138
3. Henry B. Steagall, D.	20,959
Scattering	1
4. Lamar Jeffers, D.	20,960
Hogan D. Stewart, R.	4,016
5. Miles C. Allgood, D.	24,783
Joe Brown, R.	6,135
6. W. B. Oliver, D.	15,206
7. W. B. Bankhead, D.	21,822
James B. Sloan, R.	7,699
8. Ed. B. Ahnon, D.	31,404
9. George Huddleston, D.	31,539
Paul G. Parsons, R.	8,701
Arlie Barber, S.	984
Andrew E. Ausman, Pro.	220
Lee Parsons, C.	133

ARIZONA

Governor

B. B. Moeur, D.	75,314
Jack C. Kinney, R.	42,202
Lawrence McGivern, S.	826
M. E. Gehon, C.	198
A. Bethwy, Arizona P. D.	584

U. S. Senator

Carl Hayden, D.	74,310
Ralph Cameron, R.	35,737
Lester B. Woolever, S.	1,110
Ed. Haustgen, C.	306

Representatives in Congress

AT LARGE

Lewis W. Douglas, D.	75,469
H. B. Wilkinson, R.	29,710
Ladd Vomiceli, S.	1,112
Charles Lattal, C.	293

ARKANSAS

Governor

J. Marlon Futrell, D.	200,612
— Livesay, R.	19,713
— Faulks, S.	911
— Faulks, Lib.	461
— Coney, C.	174

U. S. Senator

Mrs. Hattie W. Caraway, D.	187,994
John W. White, R.	21,558

Representatives in Congress

1. W. J. Driver, D.	36,070
2. J. E. Miller, D.	23,351
Ira J. Mack, R.	1,995

3. C. A. Fuller, D.	30,337
4. Ben Cravens, D.	30,443
5. Heartsill, Ragon, D.	27,940
A. L. Baker, R.	2,926
6. D. D. Glover D.	33,423
7. Tillman B. Parks, D.	30,360

CALIFORNIA

U. S. Senator

William Gibbs McAdoo, D.	943,164
Tallant Tubbs, R.	669,676
R. P. Shuler, P.	560,088

Representatives in Congress

1. Clarence F. Lea, D. and R.	73,400
2. H. L. Englebright, D. and R.	43,146
3. Frank H. Buck, D.	61,694
C. F. Curry, R.	46,887
4. Florence P. Kahn, D. and R.	67,425
M. C. Dempster, S.	11,603
5. Richard J. Welch, D. and R.	67,349
6. Albert E. Carter, D. and R.	75,528
7. Ralph R. Eltse, R.	45,944
F. V. Cornish, D.	32,365
J. S. Wilson, S.	22,767
8. John J. McGrath, D.	65,455
A. M. Free, R.	49,487
9. Denver S. Church, D.	50,125
H. E. Barbour, R.	31,209
10. Henry E. Stubbs, D.	50,390
A. S. Crites, R.	40,794
11. William E. Evans, R.	57,739
A. D. Hadley, D.	38,240
M. V. Hartrauft, Lib.	15,520
12. John H. Hoepfel, D.	43,122
F. F. Houser, R.	40,674
R. M. Cannon, P.	10,308
13. Charles Kramer, D.	65,261
C. H. Randall, R.	53,449
G. D. Higgins, Lib.	5,237
14. Thos. F. Ford, D.	47,368
W. D. Campbell, R.	35,598
15. Wm. I. Treager, R.	67,390
J. M. Costello, D.	57,518
E. O. Shour.	2,721
16. John F. Dockweiler, D.	70,333
Clyde Woodworth, R.	57,718
17. Charles J. Colden, D.	50,720
A. E. Henning, R.	26,868
E. E. Debs, Lib.	3,965
18. John H. Burke, D.	48,179
Robert Henderson, R.	33,817
Wm. E. Hinshaw, Ind.	8,399
19. Sam L. Collins, R.	56,889
B. Z. McKinney, D.	51,796
H. S. Hoard, Lib.	2,873
20. George Burnham, R.	43,757
Claude Chandler, D.	43,304

ELECTION STATISTICS FOR 1932

COLORADO

U. S. Senator	
Alva B. Adams, D.....	206,398
Carl C. Schuyler, R.....	182,060
Carl Whitehead, S.....	8,686

Representatives in Congress*

1. Lawrence Lewis, D.
2. Fred Cummings, D.
3. John A. Martin, D.

*Figures not available.

CONNECTICUT

Governor	
Wilbur Cross, D.....	288,347
— Trumbull, R.....	277,503
— McLevy, S.....	20,637
— Wofsy, C.....	1,360

U. S. Senator	
Augustine Lonergan, D.....	282,327
Hiram Bingham, R.....	278,061
Devere Allen, S.....	19,774
Milton Conover, Ind., R.....	10,581
John L. Grennau, S. L.....	2,243
Wm. Secker, C.....	1,876

Representatives in Congress

AT LARGE

Charles M. Bakewell, R.....	284,438
Arn. Citron, D.....	282,467
I. Polsky, S.....	19,349
Nathan Stone, Ind., R.....	5,054
K. Loske, C.....	1,361
1. H. P. Kopplemann, D.....	72,807
C. W. Seymour, R.....	70,920
F. M. Mansur, S.....	3,719
2. W. L. Higgins, R.....	45,232
Wm. C. Fox, D.....	45,011
3. F. T. Maloney, D.....	57,881
T. A. D. Jones, R.....	55,254
C. M. Rhodin, S.....	5,238
4. Schuyler Merritt, R.....	71,870
Wm. Tierney, D.....	64,268
A. E. Freese, S.....	7,237
5. Edward W. Goss, R.....	42,132
M. E. Gormley, D.....	42,054
I. T. Manchester, Ind., R...	983

DELAWARE

Governor	
Clayton D. Buck, R.....	60,903
Landreth L. Layton, D.....	50,401
Fred W. Whiteside, S.....	889
C. Harold Thomas, C.....	121

Representative in Congress

Wilbur L. Adams, D.....	51,698
Reuben Batterthwaite, R.....	48,841
Edgar Schaeffer, S.....	887
Francis B. Short, Ind.....	10,560
Frank Rhodes, S.....	110

FLORIDA

Governor	
Dave Sholtz, D.....	186,270
W. J. Howey, R.....	93,323

U. S. Senator	
Duncan U. Fletcher, D.....	204,651

Representatives in Congress

AT LARGE

W. J. Sears, D.....	186,284
Glenn B. Skipper, R.....	61,300
1. J. Hardin Peterson, D.....	61,381
Arthur R. Thompson, R.....	19,010
2. R. A. Green, D.....	22,213
3. Millard Caldwell, D.....	28,208
4. Mark Wilcox, D.....	86,101

GEORGIA

Governor	
Eugene Talmadge, D.—votes not avail.	

U. S. Senator	
Walter F. George, D.....	234,490
James W. Arnold, R.....	18,152

Representatives in Congress

AT LARGE

1. Homer C. Parker, D.....	24,429
E. K. Overstreet, Jr., R.....	1,728
2. E. E. Cox, D.....	22,446
3. B. T. Castellon, D.....	43,002
4. E. M. Owen, D.....	24,782
H. O. Lovvorn, R.....	20
5. Robert Ramspeck, D.....	26,657
6. Carl Vinson, D.....	19,615
George S. Jones.....	21
7. M. C. Tarver, D.....	24,689
Mrs. Regina Rambo Benson	4,295
8. Broswell Deem, D.....	20,021
H. J. Carswell.....	912
9. John S. Wood.....	24,673
J. M. Johnson.....	5,898
L. A. Lewis.....	44
10. C. H. Brand.....	23,911
C. L. Church.....	5

IDAHO

Governor	
C. Ben Ross, D.....	166,663
— Defenbach, R.....	68,863
— Steward, Lib.....	3,476

U. S. Senator	
James P. Pope, D.....	103,020
J. Thomas, R.....	78,325
— Oliason, Lib.....	3,801

Representatives in Congress

1. C. I. White, D.....	42,784
B. L. French, R.....	32,545
— Cornell, Lib.....	2,614
2. T. C. Coffin, D.....	58,138
— Smith, R.....	46,273
— Gould, Lib.....	1,201

ILLINOIS

Governor	
Thomas F. Donovan, D.....	1,686,265
F. E. Sterling, R.....	1,444,133
M. Halushka, S.....	38,163
A. Herchy, C.....	13,012

U. S. Senator	
William H. Dieterich, D.....	1,670,466
O. F. Glenn, R.....	1,471,841
Charles Pogorelec, S.....	37,922
W. E. Browder, C.....	13,318

Representatives in Congress

2 AT LARGE

Martin A. Brennan, D.....	1,675,274
Walter Nesbit, D.....	1,655,147
Richard Yates, R.....	1,421,221
Julius Klein, R.....	1,406,771
Hyman Schneid, S.....	38,486
George Koop, S.....	36,324
A. Pszczolkowski, C.....	11,243
L. R. Hurt, C.....	11,019
1. Oscar De Priest, R.....	33,672
Harry Baker, D.....	26,959
2. P. H. Moynihan, R.....	113,447
V. L. Schlaeger, D.....	102,099
3. Edward A. Kelly, D.....	120,093
E. W. Sproul, R.....	95,282
4. Harry P. Ream, D.....	53,722
C. T. Janowski, R.....	18,659
5. A. J. Sabath, D.....	30,747
S. S. Epstein, R.....	12,254

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6. Thomas J. O'Brien, D.	164,187	5. Glenn Griswold, D.	70,698
A. F. Rueben, R.	95,637	J. Raymond Schutz, R.	59,904
7. Leonard W. Schultz, D.	190,446	Axel G. Broo, S.	1,613
M. A. Michaelson, R.	134,801	6. Virginia E. Jenckes, D.	74,827
8. Leo Kocialkowski, D.	30,147	Fred S. Purnell, R.	64,081
Peter C. Granata, R.	11,625	Jayne Roberts, C.	280
9. Fred A. Britten, R.	40,253	Philip Rembolt, U. D.	532
James McAndrews, D.	36,596	7. Arthur H. Greenwood, D. ..	78,356
10. James Simpson, Jr., R.	101,671	George W. Henley, R.	59,949
C. H. Weber, D.	100,449	8. John W. Boehne, Jr., D.	83,396
R. E. Church, Ind.	45,067	French Clements, R.	48,031
11. Frank R. Reid, R.	82,195	9. Eugene B. Crowe, D.	76,157
J. A. Howell, D.	80,862	Chester A. Davis, R.	55,868
12. John T. Buckbee, R.	65,122	Earl E. Tibbets, S.	511
C. H. Linscott, D.	57,578	10. Finly H. Gray, D.	68,974
13. Leo E. Allen, R.	44,655	Ephraim F. Bowen, R.	63,398
O. H. Wright, D.	34,917	Max Mathews, S.	389
14. Chester Thompson, D.	50,277	11. William H. Larrabee, D. ..	67,871
J. C. Allen, R.	43,082	Dale B. Spencer, R.	57,006
15. J. Leroy Adair, D.	55,739	Robert G. Stuck, N.	365
B. M. Chipfield, R.	42,255	12. Louis Ludlow, D.	70,128
16. Everett M. Dirksen, R.	67,949	William Henry Harrison, R.	61,241
E. S. Carr, D.	44,802	George J. Lehnert, S.	2,779
17. Frank Gillespie, D.	43,198	Arthur Crane, N.	360
H. W. Hall, R.	57,594		
18. James A. Meeks, D.	58,483		
W. P. Holoday, R.	44,787		
19. D. C. Dobbins, D.	72,366		
Charles Adkins, R.	53,151		
20. Henry T. Rainey, D.	48,612		
W. J. Thornton, R.	27,540		
21. J. Earl Major, D.	66,213		
R. M. Seeley, R.	44,430		
22. Edwin M. Schaefer, D.	88,151		
Stewart Campbell, R.	49,965		
23. William W. Arnold, D.	64,551		
T. E. Austin, R.	35,885		
24. Claude V. Parsons, D.	43,107		
A. A. Miles, R.	30,175		
25. Kent E. Keller, D.	64,286		
E. E. Denison, R.	43,580		

IOWA

U. S. Senator

Lewis Murphy, D.	538,422
Henry Field, R.	399,929

Representatives in Congress

1. Edward C. Eicher, D.	55,378
W. F. Kopp, R.	46,738
2. B. M. Jacobsen, D.	71,914
Frank W. Elliott, R.	50,636
3. A. C. Willford, D.	48,939
T. J. B. Robinson, R.	47,776
4. Fred Bierman, D.	62,598
Gilbert N. Haugen, R.	42,207
5. Lloyd Thurston, R.	51,909
Lloyd Ellis, D.	51,732
6. Cassius C. Dowell, R.	56,962
Charles S. Cooter, D.	43,891
7. Otha D. Wearin, D.	57,803
Charles E. Swanson, R.	44,925
8. Fred C. Gilchrist, R.	47,834
William T. Branagan, D.	41,772
9. Guy M. Gillette, D.	61,755
Ed. H. Campbell, R.	50,796

KANSAS

Governor

Alfred M. Landon, R.	278,581
— Wodring, D.	78,944

U. S. Senator

George McGill, D.	328,992
Ben S. Paulen, R.	302,809
George A. Brown, Ind.	65,583
J. F. W. Renker, Ind.	14,550
E. Haldeman-Julius, S.	8,474

Representatives in Congress

1. W. P. Lambertson, R.	59,241
M. R. Howard, D.	34,244
George C. Hall, Ind.	9,019
2. U. S. Guyer, R.	60,902
B. J. Sheridan, D.	56,805
3. Harold McGugin, R.	52,881
E. W. Patterson, D.	44,910
Mrs. V. J. Van Zant Rowe, S.	2,232
4. Randolph Carpenter, D.	45,246
Homor Hoch, R.	44,621
F. M. Shonkwiller, Ind.	234
5. William A. Ayres, D.	65,713
W. L. Farquharson, R.	23,176

INDIANA

Governor

Paul V. McNutt, D.	862,127
Raymond S. Springer, R.	669,797
Fessendon W. Lough, P.	9,273
Powers Hapgood, S.	18,735
Charley Lynch, S. L.	1,796
Theodore Luesse, C.	2,129
Ward B. Hiner, N.	3,052

U. S. Senator

Frederick Van Nuys, D.	870,053
James E. Watson, R.	661,750
Alson E. Wrentmore, P.	9,406
Forrest Wallace, S.	18,724
Evartt Edward Bailey, S. L.	1,825
William Townsend, C.	2,123
Ralph Green, N.	1,869

Representatives in Congress

1. Wm. T. Schulte, D.	45,473
Oscar A. Ahlgren, R.	42,575
Eugene Cooney, S.	1,293
Robert A. Johnson, C.	642
Fred B. Osborne, N.	458
Walter E. Harman, U. D.	495
2. George R. Durgan, D.	73,357
William R. Wood, R.	61,897
Robert L. McGinley, S.	560
3. Samuel B. Pettengill, D.	67,686
Andrew J. Hickey, R.	52,965
Alice Mannering, S.	2,101
4. James I. Farley, D.	73,258
David Hogg, R.	56,602
Leroy H. Swartz, N.	654
Chas. H. A. Weller, Lib.	142

ELECTION STATISTICS FOR 1932

6. Kathryn O'Loughlin, D.....	62,818
Charles I. Sparks, R.....	50,242
7. Clifford R. Hope, R.....	59,269
Aaron Coleman, D.....	47,418

KENTUCKY

U. S. Senator	
Alban W. Barkley, D.	575,077
M. H. Thatcher, R.	393,865
W. E. Sandefur, S.	3,291

Representatives in Congress

AT LARGE	
Fred M. Vinson, D.	575,191
A. J. May, D.	574,189
Virgil Chapman, D.	573,750
W. V. Gregory, D.	573,269
Glover H. Cary, D.	573,505
Brent Spence, D.	574,079
C. R. Carden, D.	573,257
J. Y. Brown, D.	574,270
Finley Hamilton, D.	573,024
J. C. Speight, R.	390,370
R. Blackburn, R.	391,674
Wm. Lewis, R.	390,982
H. H. Smith, R.	391,868
G. P. Ellison, R.	390,739
B. T. Rountree, R.	390,041
D. E. McClure, R.	390,474
H. H. Asher, R.	390,148
F. B. Russell, R.	389,950

LOUISIANA

U. S. Senator	
John H. Overton, D.	249,189

Representatives in Congress

1. J. O. Fernandez, D.	48,784
2. Paul H. Maloney, D.	50,327
3. Numa F. Montet, D.	18,340
4. John N. Sandlin, D.	26,262
5. Kiley J. Wilson, D.	25,853
6. Bolivar E. Kemp, D.	25,238
7. Rene L. De Rouen, D.	24,233
8. Cleveland Dear, D.	25,644

MAINE

Governor

Louis J. Brann, D.	121,158
Burleigh Martin, R.	118,800
Frank H. Maxfield, S.	1,137

Representatives in Congress

1. Carroll L. Beedy, R.	41,112
J. E. F. Connolly, D.	39,356
2. Edward C. Moran, Jr., D.	44,490
John E. Nelson, R.	40,703
F. P. Bonney, I.	678
3. John G. Utterback, D.	34,520
Ralph O. Brewster, R.	34,226
Carl S. Godfrey, S.	213

MARYLAND

U. S. Senator

Millard E. Tydings, D.	293,389
Wallace Williams, R.	138,536
W. A. Toole, S.	8,105
Carl Bradley, C.	1,449
N. S. Twigg, S. L.	1,859

Representatives in Congress

1. T. Alan Goldsborough, D.....	39,471
H. T. Phoebus, R.	21,387
2. Wm. P. Cole, D.	87,841
D. L. Elliott, R.	42,740
3. Vincent L. Palmisiano, D.....	34,724
B. P. Ingram, R.	11,370
S. M. Neistadt, S.	1,401
Walter Potruzuski, C.	233

Unexpired term, 72d Congress

4. Ambrose J. Kennedy, D.....	46,781
Regular term, 73d Congress	
Ambrose J. Kennedy, D.	46,463
Claude B. Swezey, R.	22,231
J. J. Kane, S.	1,451
John Gattes, C.	245
5. Stephen W. Gambrill, D.....	42,329
A. K. Love, R.	17,835
6. David J. Lewis, D.	49,126
Harold C. Smith, R.	34,989

MASSACHUSETTS

Governor

Joseph B. Ely, D.	825,479
Wm. S. Youngman, R.	704,576
A. B. Lewis, S.	24,503
J. J. Ballam, C.	6,118
C. S. Oram, S. L.	3,811

Representatives in Congress

1. Allen Treadway, R.	56,767
T. F. Cassidy, D.	44,191
P. C. Wicks, S.	2,860
2. Wm. J. Granfield, D.	52,346
J. L. Brookser, R.	47,920
S. R. Harlow, S.	4,548
3. Frank H. Foss, R.	50,617
M. F. O'Connell, D.	46,081
4. Pehr G. Holmes, R.	56,408
J. J. Walsh, D.	49,788
5. Edith Nourse Rogers, R.	74,459
J. J. Bruin, D.	49,788
6. A. P. Andrew, R.	65,728
J. D. Burns, D.	31,416
7. Wm. P. Connery, Jr., D.	61,591
C. W. Lovett, R.	44,331
J. F. Massidda, S.	2,925
8. Arthur D. Healey, D.	50,266
George H. Norton, R.	48,080
9. Robert Luce, R.	61,178
F. S. Dietrick, D.	56,425
W. B. Smith, S.	1,417
10. George Holden Tinkham, R.	60,923
J. J. Crehan, D.	40,099
11. John J. Douglass, D.	45,343
W. F. McDonald, R.	7,583
12. John W. McCormack, D.	69,994
Bernard Ginsburg, R.	25,995
13. Rich'd B. Wigglesworth, R.	64,589
Edward G. Morris, D.	45,964
14. Joseph W. Martin, Jr., R.	51,680
A. J. McGraw, D.	39,259
15. Charles L. Gifford, R.	53,066
Thomas H. Buckley, D.	36,556
Jacob Minkin, S.	2,647

MICHIGAN

Governor

William A. Comstock, D.	887,672
W. M. Brucker, R.	696,935
John Penzer, S.	20,108
C. E. Holmes, P.	2,031
Robert Frazer, S. L.	1,107
Wm. Reynolds, C.	7,908

Representatives in Congress

1. George G. Sadowski, D.	51,620
C. H. Mahoney, R.	21,764
Joseph Billups, C.	1,246
2. John C. Lehr, R.	51,592
Earl C. Michener, R.	49,257
Harold P. Marley, S.	976
3. Joseph L. Hooper, R.	49,388
C. E. Ganss, D.	46,093
J. B. Childs, S.	1,374
E. M. Curry, C.	1,278
4. George Foulkes, D.	46,927
J. C. Ketcham, R.	42,931
Hale Tennant, S.	1,072

I. AMERICAN POLITICAL HISTORY

5. Carl E. Mapes, R.	52,870
W. H. Caslow, D.	48,686
Morris Armour, S.	1,202
6. Claude E. Cady, D.	55,478
S. H. Person, R.	45,818
G. M. Hudson, R.	14,541
7. Jesse P. Wolcott, R.	51,974
J. G. Tucker, D.	38,738
E. B. Dixon, P.	1,821
8. Michael J. Hart, D.	53,959
W. M. Smith, R.	45,263
C. W. Crum, S.	1,278
9. Harry W. Musselwhite, D.	40,200
J. C. McLaughlin, R.	36,434
Clyde Smith, C.	383
10. Roy O. Woodruff, R.	38,937
Wm. J. Kelly, D.	32,376
Wm. Rabideau, S.	754
11. Prentiss M. Brown, D.	39,261
Frank P. Bohn, R.	37,311
H. E. LeRoy, S.	1,542
A. Bachman, C.	333
12. W. Frank James, R.	48,014
L. S. Rice, D.	26,925
Arne Roine, C.	1,888
13. Clarence J. McLeod, R.	50,437
C. E. Seebaldt, D.	43,374
A. Simon, S.	1,689
F. Sullivan, C.	758
14. Carl M. Weidman, D.	53,789
R. H. Clancy, R.	50,491
Arthur Kent, S.	1,917
John Schmies, C.	602
15. Charles Bowles, R.	
John D. Dingell, D.	
16. John Lesinski, D.	43,369
Frank P. Darin, R.	36,174
Mint Nauta, S.	1,233
J. T. Pace, C.	1,010
17. George A. Donders, R.	51,918
Harry Mitchell, D.	44,325
W. H. Allmendinger, S.	2,042
Margaret Jenkins, C.	348

MINNESOTA

Governor	
Floyd B. Olson, F. L.	522,438
Earle Brown, R.	334,081
J. E. Regan, D.	169,859
Wm. Schneiderman, C.	4,807
J. P. Johnson, I.	1,824

Representative in Congress

9 AT LARGE	
Ray P. Chase, R.	321,092
Theodore Christianson, R.	337,110
Harold Knutson, R.	313,221
Henry Arens, F. L.	361,724
Magnus Johnson, F. L.	388,616
Paul John Kvale, F. L.	380,444
Ernest Lundeen, F. L.	350,455
F. H. Shoemaker, F. L.	317,109
Elnas Hoidale, D.	321,949

MISSISSIPPI

Representatives in Congress

AT LARGE	
Russell Ellzey, D.	25,725
W. M. Colmer, D.	22,831
John E. Rankin, D.	19,549
Ross A. Collins, D.	19,123
Wall Dozey, D.	15,092
Jeff Busby, D.	14,072
Will M. Whittington, D.	13,562

MISSOURI

Governor	
Guy B. Park, D.	968,551
— Winter, R.	629,428
— Wolf, S.	10,921
U. S. Senator	
Bennett Champ Clark, D.	1,017,046
A. W. Kell, R.	575,174
— Hodges, S.	11,441
— Faris, Pro.	3,147

Representatives in Congress

13 AT LARGE	
John J. Cochran, D.	1,013,824
James R. Claiborne, D.	1,004,170
Joseph B. Shannon, D.	1,002,557
Clyde Williams, D.	1,000,218
Clarence Cannon, D.	997,642
Frank H. Lee, D.	997,448
James E. Ruffin, D.	996,969
Ralph F. Lozier, D.	995,676
Jacob L. Milligan, D.	995,002
Ruben T. Wood, D.	994,569
Milton A. Romjue, D.	994,123
Richard M. Duncan, D.	988,200
Clement C. Dickinson, D.	981,847
L. Miller, R.	588,248
L. C. Dyer, R.	609,268
C. Otto, R.	588,647
D. Hopkins, R.	582,662
C. Clark, R.	586,165
P. A. Bennett, R.	589,272
M. H. Davis, R.	580,495
J. W. Palmer, R.	582,324
J. M. Hadley, R.	589,205
R. L. Johnston, R.	584,356
J. Stewart, R.	589,615
J. J. Manlove, R.	585,840
H. F. Neidringhaus, R.	603,345

MONTANA

Governor	
John E. Erickson, D.	104,949
Frank A. Hazelbaker, R.	101,105
C. Yegen, S.	6,317
R. Salisbury, C.	2,008
Wm. R. Duncan, L.	2,002
Representatives in Congress	
1. Joseph P. Monaghan, D.	51,159
M. D. Fitzgarrald, R.	33,333
A. N. Brooks, S.	1,936
2. Roy E. Ayers, D.	64,103
Scott Leavitt, R.	53,890
J. H. Matheson, S.	1,589
Harry Juul, C.	1,464
H. F. Fuerstrion, Lib.	1,100

NEBRASKA

Governor	
Charles W. Bryan, D.	296,117
D. Griswold, R.	260,888
J. M. Paul, S.	6,733
Representatives in Congress	
1. John H. Morehead, D.	63,022
M. L. Poteet, R.	43,653
Daniel Hill, S.	1,952
2. Edward R. Burke, D.	51,728
Malcolm Baldrige, R.	44,209
A. F. Stearns, S.	1,121
C. L. Nethaway, by petition	453
G. P. North, by petition....	1,683
H. Hoffman, by petition....	380
H. W. Thomas, by petition	1,277
3. Edgar Howard, D.	74,207
H. Halderon, R.	32,954
A. Hohneke, S.	1,424
M. Hall, by petition....	3,795

ELECTION STATISTICS FOR 1932

4. Ashton C. Shallenberger, D.	53,713
F. G. Johnson, R.	38,938
P. Uerling, S.	1,437
C. M. Bosley, by petition.	4,778
C. G. Binderup, by petition	21,100
5. Terry Carpenter, D.	53,586
R. G. Simmons, R.	49,200
A. E. Bell, S.	1,591

NEVADA

U. S. Senator	
Patrick A. McCarran, D.	21,398
Tasker L. Oddie, R.	19,706
Representative in Congress	
James G. Scrugham, D.	24,979
S. S. Arentz, R.	16,133

NEW HAMPSHIRE

Governor	
John G. Winant, R.	106,777
— Ledoux, D.	89,487
— Butler, S.	525
— Wilgus, C.	235

U. S. Senator	
Fred H. Brown, D.	98,766
G. H. Moses, R.	96,649
C. W. Greene, S.	533
F. B. Chase, C.	228

Representatives in Congress	
1. Wm. N. Rogers, D.	50,306
W. P. Straw, R.	47,639
J. Zebrowski, C.	135
2. Charles H. Tobey, R.	50,156
J. J. Doyle, D.	44,459
E. Bourbon, S.	284
W. H. Wirkkala, C.	97

NEW JERSEY

U. S. Senator	
W. Warren Barbour, R.	741,734
P. H. Stewart, D.	725,511
H. F. Nessler, S.	19,060
J. C. Butterworth, S. L.	1,601
Esther Hill Elfreth, P.	2,966
J. L. Creekmur, C.	2,256
R. Y. Page, personal choice	2,256

Representatives in Congress	
1. Charles A. Wolverton, R.	89,816
S. T. French, D.	54,701
M. Stempa, S.	3,628
2. Isaac Bacharach, R.	60,963
H. R. Coulomb, D.	35,257
3. W. H. Sutphin, D.	61,253
Stanley Washburn, R.	58,217
4. D. Lane Powers, R.	51,794
Monell Sayre, D.	40,705
W. C. Kauffman, S.	1,438
5. Charles A. Eaton, R.	60,713
F. M. P. Pearse, D.	51,964
B. W. Stokes, S.	1,171
6. Donald H. McLean, R.	65,653
F. C. Hyer, D.	47,938
7. Randolph Perkins, R.	52,003
H. Cross, D.	47,688
F. Kadel, S.	904
8. George N. Seger, R.	50,997
H. Joelson, D.	50,759
G. De Young, S.	1,534
9. Edward A. Kenney, D.	53,822
J. W. Marini, R.	52,932
H. J. Cox, S.	1,690
E. J. Ryan, Ind.	4,610
10. Fred A. Hartley, Jr., R.	53,316
Wm. W. Harrison, D.	41,901
A. P. Wittel, S.	1,274

11. Peter A. Cavicchia, R.	47,495
J. J. McCloskey, D.	46,540
M. H. Walker, S.	1,192
12. Fred. R. Lehlbach, R.	54,783
J. M. Degnan, D.	40,746
L. Reiss, S.	1,918
13. Mary T. Norton, D.	73,779
Mortimer Neuman, R.	27,964
14. Oscar L. Auf der Heide, D.	77,519
V. P. McGann, R.	24,448

NEW MEXICO

Governor	
Arthur Seligman, D.	83,612
B. C. Dillon, R.	67,406
Representatives in Congress	
AT LARGE	
Dennis Chavez, D.	95,089
Jose E. Armijo, R.	52,905

NEW YORK

Governor	
Herbert H. Lehman, D.	2,659,519
William Donovan, R.	1,812,080
Louis Waldman, S.	102,959

U. S. Senator	
Robert F. Wagner, D.	2,532,905
George Z. Medalie, R.	1,751,189
Charles Solomon, S.	143,282
William W. Weinstone, C.	29,052
Jeremiah D. Crowley, S.	10,328

Representatives in Congress	
1. Robert L. Bacon, R.	153,435
Cornelius V. Whitney, D.	121,909
Eric E. DeMarsh, S.	4,426
2. William F. Brunner, D.	172,512
Horace A. Demarest, R.	68,525
James Oneal, S.	10,844
3. George W. Lindsay, D.	33,750
Edgar H. Hazelwood, R.	5,799
Joseph A. Weil, S.	1,754
Clarence H. Hathaway, C.	444
4. Thomas H. Cullen, D.	89,562
Conrad P. Printzlien, R.	7,429
Joseph C. Class, S.	978
Carl O. Peterson, C.	237
5. Loring M. Black, Jr., D.	51,932
Irving C. Maltz, R.	24,814
Jacob L. Afros, S.	3,489
6. Andrew L. Somers, D.	81,011
Joseph P. Byrne, R.	42,221
Harry W. Laidler, S.	15,568
Wolf Scheffer, C.	2,027
7. John J. Delaney, D.	36,088
Richard W. Thomas, R.	9,696
David M. Cory, S.	3,181
Emanuel Levin, C.	819
8. Patrick J. Carley, D.	140,853
Daniel Edelman, R.	49,471
Baruch C. Vladeck, S.	31,930
Louis De Santer, C.	4,471
9. Stephen A. Rudd, D.	69,034
James Virdone, R.	38,047
Abraham I. Shiplacoff, S.	7,496
Richard B. Sullivan, C.	1,027
10. Emanuel Celler, D.	36,460
William A. Ronalds, R.	14,167
Louis Sadoff, S.	5,334
Harry Friedman, C.	1,142
11. Anning S. Prall, D.	50,418
Frank Homer Fay, R.	20,323
Walter Dearing, S.	2,075

I. AMERICAN POLITICAL HISTORY

12. Samuel Dickstein, D.....	21,248	35. Clarence E. Hancock, R.....	79,345
Henry Steinberg, R.....	2,068	Edmund L. Weston, D.....	60,376
Abraham P. Conan, S.....	817	Walter B. McInch, S.....	2,950
13. Christopher D. Sullivan, D.....	21,939	36. John Taber, R.....	58,484
John Rosenberg, R.....	2,513	Lithgow Osborne, D.....	36,648
Evelyn W. Hughan, S.....	680	Esther Wright, S.....	896
14. William I. Sirovich, D.....	20,668	37. Gale H. Stalker, R.....	55,305
Henry A. Lowenberg, R.....	9,651	Julian P. Bretz, D.....	48,048
August Claessens, S.....	2,735	Edward Amherst Ott, S.....	1,401
15. John J. Boylan, D.....	30,112	John D. Driscoll, Lib.....	696
Charles Condert Nast, R.....	5,987	38. James L. Whitley, R.....	64,003
William E. Bohn, S.....	856	Charles Stanton, D.....	58,775
16. John J. O'Connor, D.....	29,485	Richard M. Briggs, S.....	3,633
Eugene S. Taliaferro, R.....	12,449	39. James W. Wadsworth, R.....	50,855
Bertha Mailly, S.....	1,541	David A. White, D.....	35,367
17. Theodore A. Peyser, D.....	36,397	Martin T. Cook, S.....	1,500
Ruth Pratt, R.....	29,776	40. Walter G. Andrews, R.....	92,929
Alexander Kahn, S.....	2,092	Ralph W. Nolan, D.....	54,363
18. Martin J. Kennedy, D.....	30,245	Herman J. Hahn, S.....	3,209
Patrick S. Hickey, R.....	7,997	41. Alfred F. Beiter, D.....	45,120
Emerich Stelberger, S.....	1,564	Edmund F. Cooke, R.....	42,743
19. Sol Bloom, D.....	57,400	Robert A. Hoffman, S.....	2,280
William L. Carns, R.....	21,758	42. James M. Mead, D.....	51,516
Reinhold Niebuhr, S.....	3,582	Henry Adsit Bull, R.....	30,230
20. James J. Lanzetta, D.....	16,447	Marklet H. Harding, S.....	1,410
F. H. LaGuardia, R.....	15,227	43. Daniel A. Reed, R.....	55,988
Frank Poree, S.....	449	Gerald A. Herrick, D.....	34,561
21. Joseph A. Gavagan, D.....	67,583	John C. Cooper, S.....	2,690
Oscar J. Smith, R.....	28,955	AT LARGE	
Frank R. Crosswaith, S.....	7,390	Elmer E. Studley, D.....	2,363,627
22. Anthony J. Griffin, D.....	38,172	John Fitzgibbons, D.....	2,333,787
Wilbur J. Murphy, R.....	8,768	Nicholas Howard Pinto, R.....	1,756,343
Tyrell Wilson, S.....	2,226	Sherman J. Lowell, R.....	1,740,325
23. Frank Oliver, D.....	181,852	G. August Gerber, S.....	166,781
Samuel J. Krinn, R.....	31,753	Fred Sander, S.....	163,648
Samuel Orr, S.....	21,349	Jacob Berlin, S.....	12,546
24. James M. Fitzpatrick, D.....	128,881	O. Martin Olson, S.....	11,623
Benjamin L. Fairchild, R.....	65,189		
Esther Friedman, S.....	15,389	NORTH CAROLINA	
Moissaye J. Olgin, C.....	4,697	Governor	
25. Charles D. Millard, R.....	80,909	J. C. B. Ehringhaus, D.....	497,656
Jesse B. Perlman, D.....	63,345	—Frazier, R.....	212,559
Carl O. Parsons, S.....	2,472	U. S. Senator	
26. Hamilton Fish, Jr., R.....	61,687	Robert R. Reynolds, D.....	482,133
Roslyn M. Cox, D.....	43,174	Jake F. Newell, R.....	220,524
Albert W. Brower, S.....	895	Representatives in Congress	
27. Philip A. Goodwin, R.....	52,099	1. Lindsay C. Warren, D.....	32,790
Clifford L. Miller, D.....	46,154	John B. Respass, R.....	3,313
Milo C. Myers, S.....	911	2. John H. Kerr, D.....	34,325
28. Parker Corning, D.....	89,096	B. B. Howell, R.....	1,430
Issac G. Brame, R.....	47,706	3. Charles L. Abernethy, D.....	30,395
Allin Depew, S.....	873	H. B. Ivey, R.....	11,146
29. James S. Parker, R.....	65,559	4. Edward W. Pou, D.....	51,103
John J. Nyhoff, D.....	46,935	L. P. Dixon, R.....	16,129
Coleman B. Cheney, S.....	789	5. Frank W. Hancock, Jr., D.....	40,825
30. Frank Crowther, R.....	55,981	L. L. Wall, R.....	17,326
George D. Lamberton, D.....	42,632	6. William B. Umstead, D.....	38,024
Herbert M. Merrill, S.....	2,221	William I. Ward, R.....	18,093
31. Bertrand H. Snell, R.....	47,937	7. J. Bayard Clark, D.....	35,416
Kenneth Gardner, D.....	35,153	J. M. Byrd, R.....	8,657
George E. Brassard, S.....	333	8. J. Walter Lambeth, D.....	49,584
32. Francis D. Culkin, R.....	56,654	A. H. Ragan, R.....	26,260
John C. Purcell, D.....	34,199	9. Robert L. Doughton, D.....	51,145
James A. Manson, S.....	751	P. P. Dullin, R.....	29,421
33. Fred J. Sisson, D.....	53,427	10. Alfred L. Bulwinkle, D.....	63,776
Frederick M. Davenport, R.....	52,398	Charles A. Jonas, R.....	43,067
Otto L. Endres, S.....	1,119	11. Zebulon Weaver, D.....	64,667
34. John D. Clarke, R.....	58,735	Crawford F. James, R.....	39,180
Charles R. Seymour, D.....	44,174		
Pierre De Nle, S.....	718	NORTH DAKOTA	
		Governor	
		William Langer, R.....	134,231
		H. C. De Puv. D.....	100,825

ELECTION STATISTICS FOR 1932

U. S. Senator

Gerald P. Nye, R.	172,796
P. W. Lanier, D.	65,612

Representatives in Congress

2 AT LARGE

Wm. Lemke, R.	185,339
J. H. Sinclair, R.	144,339
W. D. Lynch, D.	72,659
R. B. Murphy, D.	71,695

OHIO

Governor

George White, D.	1,354,518
David S. Ingalls, R.	1,151,943
J. W. Sharts, S.	32,324
Wm. Woodhouse, S. L.	1,785
Aaron Watkins, Pro.	19,573
John Marshall, C.	6,348

U. S. Senator

Robert J. Bulkley, D.	1,293,175
Gilbert Bettman, R.	1,126,832
F. M. McCartney, Pro.	34,760
I. O. Ford, C.	7,227

Representatives in Congress

AT LARGE

Charles V. Truax, D.	1,206,631
Stephen M. Young, D.	1,200,946
George H. Bender, R.	1,109,562
L. T. Palmer, R.	1,102,567
E. R. Stafford, P.	24,625
A. H. Stratton, Pro.	17,844
John Rehms, C.	7,050
Wm. Hughey, C.	6,010
1. John B. Hollister, R.	66,018
E. H. Brink, D.	55,416
2. Wm. E. Hess, R.	58,971
E. F. Alexander, D.	57,258
3. Byron B. Harlan, D.	85,069
Edith M. Patterson, R.	66,107
J. F. Mincher, S.	4,178
4. Frank L. Klobb, D.	59,003
John L. Cable, R.	49,100
5. Frank C. Kniffin, D.	44,433
Wm. L. Manahan, R.	29,605
6. Jas. G. Polk, D.	50,913
Mack Sauer, R.	39,668
7. L. T. Marshall, R.	65,064
A. J. Halloran, D.	57,715
8. Brooks Fletcher, D.	45,930
Grant E. Mouser, Jr., R.	41,234
9. Warren J. Duffey, D.	56,755
W. M. White, R.	54,078
Karl Pauli, S.	1,314
Eugene Stoll, C.	620
Silas E. Hurin, Ind.	200
Clyde E. Kiker, Ind.	2,135
10. Thomas A. Jenkins, R.	41,654
C. M. Hogan, D.	29,027
11. Mel G. Underwood, D.	44,380
D. J. Lewis, R.	26,075
12. Arthur P. Lamneck, D.	63,135
J. C. Speaks, R.	62,704
13. Wm. L. Feisinger, D.	56,070
W. E. Kruger, R.	39,122
14. Dow W. Harter, D.	93,057
Francis Sieberling, R.	78,852
15. Robert T. Secrest, D.	50,313
C. Ellis Moore, R.	38,118
16. Wm. R. Thorn, D.	67,670
C. B. McClintock, R.	63,609
17. Charles West, D.	55,296
Wm. M. Morgan, R.	51,601
18. Lawrence E. Imhoff, D.	56,562
Frank Murphy, R.	56,010
19. John G. Cooper, R.	74,534
D. F. Dunlavy, D.	65,024

20. Martin L. Sweeney, D.	52,933
John Fromholz, C.	650
21. Robert Crosser, D.	49,436
Gerard Pilliod, R.	25,527
22. Chester C. Bolton, R.	141,296
Florence E. Allan, D.	98,427

OKLAHOMA

U. S. Senator

Elmer Thomas, D.	426,130
Wirt Franklin, R.	218,854
James I. Whidden, Ind.	1,395
J. W. Houchin, Ind.	1,245
John Franing, Ind.	1,061
Thomas P. Hopley, Ind.	819

Representatives in Congress

1. Wesley E. Disney, D.	81,080
Frank Frantz, R.	46,472
A. F. Sweeney, Ind.	603
2. William W. Hastings, D.	46,710
William F. Head, R.	19,567
3. Wilburn Cartwright, D.	59,090
Walter Colbert, R.	10,225
4. Tom D. McKeown, D.	61,867
E. W. Kemp, R.	20,069
5. F. B. Swank, D.	64,303
Paul Huston, R.	35,785
6. Jed Johnson, D.	53,869
George E. Young, R.	14,048
7. James V. McClintic, D.	43,809
W. G. Roe, R.	8,756
T. H. McLemore, Ind.	3,651
8. E. W. Marland, D.	51,404
M. C. Garber, R.	31,677
W. E. Knapp, Ind.	654
Alfred Reynolds, Ind.	141

AT LARGE

Will Rogers, D.	467,644
R. A. Howard, R.	171,415
George E. Taylor, Ind.	2,027
R. J. Shive, Ind.	1,016

OREGON

U. S. Senator

Frederick Steiwer, R.	186,210
W. B. Gleason, D.	137,237
J. A. Thomas, S.	12,266
F. E. Coulter, Ind.	11,859
S. Jacobsen, S.-L.	3,007
A. G. Krueger, C.	2,555

Representatives in Congress

1. James W. Mott, R.	82,443
H. G. Starkweather, D.	60,066
W. J. Butler, Ind.	12,417
L. Giddings, S.	4,173
U. A. Upton, S.-L.	1,823
2. Walter M. Pierce, D.	30,219
R. R. Butler, R.	25,169
H. E. Brady, Ind.	5,133
O. D. Teel, S.	1,258
P. F. Schnur, S.-L.	937
3. Charles H. Martin, D.	74,397
H. D. Angell, R.	40,650
A. Streiff, S.	5,015
H. H. Stallard, Ind.	3,659
C. V. Soderback, S.-L.	1,221
R. L. Lovelace, C.	1,154

PENNSYLVANIA

U. S. Senator

James J. Davis, R. & Lib.	1,375,489
L. H. Rupp, D.	1,200,760
W. J. Van Essen, S.	91,456
E. J. Fithian, Pro.	106,602
H. M. Wicks, C.	6,426

I. AMERICAN POLITICAL HISTORY

Representatives in Congress

1. Harry C. Ransley		14. William E. Richardson, D...	29,386
R.	38,921	T. L. Rhoads, R.	22,898
D.	26,325	R. S. Hofses, S.	19,319
L.	49	15. Louis T. McFadden	
R.-P.	213	R.	39,997
G. Kutikoff, S.	819	D.	30,312
C. Lippa, C.	362	Pro.	1,036
H. T. Glenn, Fair Play....	4,933	H. L. Springer, S.	2,935
2. James M. Beck		16. Robert F. Rich	
R.	41,813	R.	44,488
Lib.	149	P.	1,556
R.-P.	271	P. A. Rothruas, D.	24,671
J. J. Shanahan, D.	27,506	W. A. Hall, S.	1,732
A. J. Biemiller, S.	1,128	17. J. William Ditter	
3. Alfred M. Waldron		R.	59,585
R.	52,622	Lib.	108
R.-P.	442	P. C. Pendleton	
F. M. O'Brien, D.	37,487	D.	32,230
J. Kazmark, S.	1,499	R.-P.	476
4. George W. Edmonds, R.	43,086	F. R. Taylor	
W. J. O'Rourke, D.	36,198	Pro.	1,528
J. Schwartz, S.	1,745	Enf.	461
5. James J. Connolly		Mary Winsor, S.	2,912
R.	48,730	S. E. Hoover, U. D.	2,419
Lib.	466	18. (Old)	
R.-P.	320	Joseph F. Biddle, R.	38,584
C. J. Agnew		M. M. Meyers, D.	26,370
D.	36,160	18. (New)	
Anti-Carpet Bagger	80	Benjamin K. Focht, R.	28,749
F. E. Daniel, S.	3,441	J. G. H. Rippman, D.	19,230
6. Edward L. Stokes		O. B. Poulson, Clt.	11,568
R.	44,735	19. Isaac H. Doutrich, R.	59,120
Lib.	149	C. K. Deen, R.	37,752
H. V. Dougherty		B. E. Prugh, Pro.	2,353
D.	40,095	S. Young, S.	2,555
R.-P.	345	20. Thomas C. Cochran	
M. H. Goldstein, S.	1,996	R.	41,285
SPECIAL		Pro.	1,996
Robert L. Davis, R.	63,929	Non-P.	7
L. J. Horton, D.	54,178	Soc.	1,532
7. George P. Darrow, R.	62,031	D. J. Driscoll, D.	38,798
J. C. Crumlish, D.	35,096	21. Francis E. Walter, D.	39,996
D. H. H. Felix, S.	2,593	W. R. Coyle, R.	34,189
8. James Wolfenden		S. R. Hartzell, S.	1,675
R.	70,113	22. Harry L. Haines	
M. Randall, D.	32,139	D.	46,550
C. W. Conrad, Pro.	1,454	Pro.	1,098
J. Holmes, S.	2,850	L. C. Taylor, R.	32,966
9. Henry W. Watson, R.	40,726	P. K. Coover, S.	1,675
N. L. Lichtenwalner, D.	37,490	23. J. Banks Kurtz	
W. L. Huhn, S.	2,796	R.	34,245
10. Roland Kinzer		P.	1,090
R.	61,475	Non-P.	7
Pro.	1,207	F. B. Kerr	
R. P. McGrann		D.	33,948
D.	35,649	Non-P.	2
Repeal	1,192	C. D. Rickel, S.	2,573
Frank Scott, Jr., S.	2,361	24. J. Buell Snyder, D.	31,144
11. Patrick J. Boland		S. A. Kendall	
R.	32,210	R.	25,585
D.	37,474	Pro.	519
George Hart, Pro.	3,005	Non-P.	1
12. C. Murray Turpin, R.	57,377	D. Rinne, S.	1,075
J. J. Casey		25. Charles I. Faddis, D.	36,781
D.	54,049	H. W. Temple	
S.	1,601	R.	26,751
13. George F. Brumm		Pro.	598
R.	50,854	F. A. Silvis, S.	1,466
D.	44,014	26. J. Howard Swick	
Lib.	589	R.	40,725
R.-P.	760	Pro.	2,569
A. Malnowski, S.	4,374	S.	1,735
F. N. Magrady, Pro.	5,055	S. B. Wilson, D.	38,402

ELECTION STATISTICS FOR 1932

27. Nathan L. Strong

R.	51,175
Pro.	1,709
D. A. Dorn, D.	42,763
R. McElldowney, Lib.	4,819
W. C. Widdowson, S.	2,624

28. William M. Berlin

D.	43,262
Jobless	357

A. M. Wyant

R.	31,085
Pro.	1,092
A. W. Zornik, S.	3,161

29. Charles N. Crosby

D.	29,391
Ind.	629
Lib.	86

N. W. Shreve

B.	27,005
Pro.	944

F. Lindy, S.

30. Twing Brooks, D.	35,186
E. F. Erk, R.	35,045
Sarah Z. Limbach, S.	2,553
R. Hervey, Pro.	1,159

31. Clyde Kelly

B.	36,782
D.	30,663
Pro.	1,381
Ind.	112
Non-P.	6

W. B. Kane, S.	5,620
L. O. Guthrie, Repeal	6,031

32. Michael J. Muldowney, R.

Anne E. Felix, D.	18,986
Max Lutzy, S.	1,029

33. Henry Ellenbogen, D.

Harry A. Estep, R.	30,076
S. Oshry, S.	1,673
G. Harger, Pro.	1,033

34. Matthew Dunn, D.

G. E. Campbell, R.	38,101
Mary B. Lehner, S.	3,191
T. M. Heard, Pro.	1,575

RHODE ISLAND

Governor

T. F. Greene, D.	145,729
— Case, R.	114,076

Representatives in Congress

1. Francis B. Condon, D.	70,429
Clark Burdick, R.	55,940
Sara M. Algeo, Ind.	222
2. John M. O'Connell, D.	72,971
Thomas P. Hazard, R.	59,993
Alfred W. Pett, P.	306

SOUTH CAROLINA

U. S. Senator

Ellison D. Smith, D.	104,472
Clara Harrigal	1,976

Representatives in Congress

1. Thomas S. McMillan, D.	14,415
D. C. Sharpe	616
2. H. P. Fulmer, D.	18,699
D. A. Gardner	401
3. John C. Taylor, D.	19,286
T. F. McCord	159
4. J. J. McSwain, D.	23,041
Otho Williams	382
5. J. P. Richard, D.	15,046
G. M. Williams	235
6. A. H. Gasque, D.	14,159
C. B. Ruffin, R.	194

SOUTH DAKOTA

Governor

Tom Berry, D.	158,058
Warren Green, R.	120,473
H. O. Stevens, Lib.	4,965
— Tangen, Ind.	619

U. S. Senator

Peter Norbeck, R.	151,845
U. S. G. Cherry, D.	125,731
Howard Platt, Lib.	3,873

Representatives in Congress

1. Fred H. Hildebrandt, D.	110,047
C. A. Christopherson, R.	92,062
P. L. Werth, Lib.	3,332
Lydia B. Johnson, Ind.	1,467
Roy Miller, Ind.	297
2. Theo. B. Werner, D.	36,839
Wm. Williamson, R.	29,066
Arne Jaskela, Ind.	251

TENNESSEE

Governor

Hill McAllister	168,075
— McCall	121,397
— Pope	107,026

Representatives in Congress

1. B. Carroll Reece, R.	30,366
O. B. Lovette, Ind.	27,888
Albert C. Tipton, D.	7,950
2. J. Will Taylor, R.	32,460
H. S. Burnett, D.	22,818
3. Sam D. McReynolds, D.	28,778
William N. Levan, R.	1,252
4. Ridley Mitchell, D.	30,580
W. H. Crowell, R.	5,882
5. Joseph W. Byrns, D.	33,833
J. Y. Freeman, R.	4,066
6. Clarence W. Turner, D.	15,779
G. C. Stephenson, R.	3,915
7. Gordon Browning, D.	20,294
Willoughby Stewart, R.	5,485
8. L. Jere Cooper, D.	19,871
Mary Burnett, R.	2,307
9. Edward H. Crump, D.	38,001
S. A. Godsey, R.	2,953

TEXAS

Representatives in Congress

AT LARGE

George B. Terrell, D.	755,493
Joseph W. Bailey, D.	794,840
Sterling P. Strong, D.	798,443
F. A. Blankenbeckler, R.	60,905
Enoch G. Fletcher, R.	63,579
J. A. Simpson, R.	60,060
H. M. Shelton, S.	2,543
B. O. Miller, S.	2,423
P. L. Petersen, S.	2,530
1. Wright Putman, D.	30,854
A. O. Barker, R.	776
2. Martin Dies, D.	51,999
J. H. Buchanan, R.	2,522
3. Morgan G. Saunders, D.	28,525
4. Sam Rayburn, D.	23,404
Floyd Harry, R.	1,171
5. Hatton W. Sumners, D.	52,598
G. J. McManus, R.	4,539
6. Luther A. Johnson, D.	31,621
7. Clay Stone Briggs, D.	29,361
A. J. Long, R.	1,421
8. Daniel E. Garrett, D.	57,882
W. E. Lang, R.	5,005
9. J. J. Mansfield, D.	36,522
Lewis Allen, R.	1,240
10. J. P. Buchanan, D.	33,232

I. AMERICAN POLITICAL HISTORY

11. O. H. Cross, D.	38,186
C. C. Baker, R.	1,247
12. Fritz G. Lanham, D.	41,151
George Calvert, R.	2,968
13. W. D. McFarlane, D.	38,657
14. Richard M. Kleberg, D.	69,471
F. B. Vaughn, R.	6,456
15. John N. Garner, D.	44,318
C. G. Watson, R.	7,362
16. R. E. Thomason, D.	49,068
17. Thomas L. Blanton, D.	42,658
18. Marvin Jones, D.	78,226
S. E. Fish, R.	3,245

UTAH

Governor	
Henry H. Blood, D.	116,031
W. W. Seegmiller, R.	85,913
A. L. Porter, S.	2,707
M. P. Bales, C.	1,010

U. S. Senator	
Elbert D. Thomas, D.	116,909
Reed Smoot, R.	86,066
J. O. Watters, S.	2,464
J. E. Watts, C.	883

Representatives in Congress	
1. Abe Murdock, D.	47,774
Don B. Colton, R.	44,827
E. M. Webber, S.	1,542
2. J. W. Robinson, D.	62,400
F. C. Loofbourow, R.	46,919
W. E. Trinnaman, Jr., S.	1,209

VERMONT

Governor	
Stanley C. Wilson, R.	81,656
J. P. Leamy, D.	49,246
F. W. Smiter, S.	1,447

U. S. Senator	
Porter H. Dale, R.	74,319
F. C. Martin, D.	60,453

Representative in Congress	
Ernest W. Gibson, R.	86,194
J. A. McNamara, D.	47,591

VIRGINIA

Representatives in Congress	
10. Joel W. Flood	23,150
(Unexpired term of Henry St. George Tucker, deceased.)	

9 AT LARGE

S. Otis Bland, D.	204,372
Colgate W. Darden, Jr., D.	202,759
Andrew Jackson Montague, D.	205,133
P. H. Drewry, D.	202,800
T. G. Burch, D.	204,069
Clifton A. Woodrum, D.	206,631
A. Willis Robertson, D.	208,727
Howard W. Smith, D.	203,023
John W. Flannagan, Jr., D.	201,474
Henry A. Wise	78,622
Menalcus Lankford	92,586
G. C. Scott	81,015
F. W. McWane	82,480
J. A. Gaber	84,464
R. E. Chase	81,909
C. C. Berkeley	43,202
W. M. Brown	43,936
R. L. Gordon, Jr.	16,504
A. J. Royal	4,782
W. F. Dawson	4,629

H. R. Ansell	4,603
A. J. Dunning, Jr.	16,383
D. A. George	4,165
Angie M. Norris	4,024
J. E. Spaulding	3,683
Frank Lyon	207

WASHINGTON

Governor	
Clarence D. Martin, D.	352,215
J. A. Gellatly, R.	207,497
L. C. Hicks, Lib.	41,710
J. P. McKay, S.	9,987
F. E. Walker, C.	2,532

U. S. Senator	
Homer T. Bone, D.	365,939
Wesley L. Jones, R.	197,450
F. R. Burch, Lib.	28,859
A. T. Hunter, S.	9,364
Alex Noral, C.	2,183

Representatives in Congress	
1. Marion A. Zioncheck, D.	80,665
J. F. Miller, R.	62,283
E. E. Barnes, Lib.	2,196
2. Monrad C. Wallgren, D.	49,002
L. H. Hadley, R.	30,780
Floyd Hatfield, Lib.	6,677
3. Martin F. Smith, D.	38,713
Albert Johnson, R.	28,397
J. T. Sullivan, Lib.	15,427
4. Knute Hill, D.	41,708
J. W. Summers, R.	32,360
5. Sam B. Hill, D.	73,041
Leo Welsh, S.	2,403
6. Wesley Lloyd, D.	44,573
J. T. McCutcheon, R.	32,760
Tom Martin, Lib.	11,554

WEST VIRGINIA

Representatives in Congress	
1. Robert L. Ramsey, D.	58,060
Carl G. Bachmann, R.	55,023
2. Jennings, Randolph, D.	55,556
Frank L. Bowman, R.	48,055
3. Lynn S. Horner, D.	52,287
John M. Wolverton, R.	45,274
4. George W. Johnson, D.	62,848
Robert L. Hogg, R.	56,993
5. John Kee, D.	61,277
Hugh Ike Shott, R.	56,355
6. Joe L. Smith, D.	102,896
James O. Lakin, R.	79,470

WISCONSIN

Governor	
A. G. Schmedeman, D.	590,114
Harry Dahl, R.	450,966
Wm. Coleman, S.	63,380
J. K. Peckham, Pro.	3,296

U. S. Senator	
F. Ryan Duffy, D.	610,236
J. B. Chapple, R.	387,668
Emil Seidel, S.	65,807
H. A. Knapp, Pro.	4,364

Representatives in Congress	
1. George W. Blanchard, R.	50,874
W. D. Thompson, D.	48,093
2. C. W. Henney, D.	63,091
J. B. Gay, R.	47,193
3. Gardner R. Withrow, R.	59,535
J. J. Boyle, D.	38,646
4. Raymond J. Cannon, D.	61,058
J. O. Schafer, R.	33,609

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

5. Thomas O'Malley, D.	57,294
J. A. Padway, R.	32,559
6. Michael K. Reilly, D.	59,055
L. J. Fellenz, R.	38,708
7. Gerald J. Boileau, R.	49,322
F. D. Chapman, D.	46,737
8. James Hughes, D.	53,414
G. J. Schneider, R.	51,887
9. James A. Frear, R.	52,680
M. H. McNally, D.	39,874
10. Hubert H. Peaney, R.	49,764
P. B. Cadigan, D.	33,448

WYOMING

Governor

Leslie A. Miller, D.	48,130
— Westen, R.	44,692

Representatives in Congress

AT LARGE

Vincent Carter, R.	44,816
Paul R. Greever, D.	43,056
W. W. Wolfe, S.	1,428
J. Ross Carpenter, A.	743
George Morphis, C.	148

DIVISION I

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

GENERAL

AMERICAN ANTIQUARIAN SOCIETY, Worcester, Mass.
 AMERICAN BAPTIST HISTORICAL SOCIETY, Upland Avenue, Chester, Pa.
 AMERICAN HISTORICAL ASSN., 40 B Street S. W., Washington, D. C.
 AMERICAN IRISH HISTORICAL SOCIETY, 132 East 16th St., New York City.
 AMERICAN JEWISH HISTORICAL SOCIETY, 531 West 123rd Street, New York City.
 AMERICAN NUMISMATIC SOCIETY, 156th Street at Broadway, New York City.
 AMERICAN PROPORTIONAL REPRESENTATION LEAGUE, 1417 Locust Street, Philadelphia, Pa.
 AMERICAN SCENIC AND HISTORIC PRESERVATION SOCIETY, 154 Nassau Street, New York City.
 AMERICAN SOCIETY OF CHURCH HISTORY, 98 Mercer St., Princeton, N. J.
 CANADIAN HISTORICAL ASSN., Ottawa, Canada.
 HISPANIC SOCIETY OF AMERICA, 156th St., W. of Broadway, New York City.
 HOLLAND SOCIETY OF NEW YORK, 90 West Street, New York City.
 HUGENOT SOCIETY OF AMERICA, 2 West 45th Street, New York City.
 METHODIST HISTORICAL SOCIETY, 150 Fifth Ave., New York City.
 MISSISSIPPI VALLEY HISTORICAL ASSN., Austin, Tex.
 NEW ENGLAND HISTORIC GENEALOGI-

CAL SOCIETY, 9 Ashburton Place, Boston, Mass.
 NORTHWESTERN ASSN. OF HISTORY, GOVERNMENT AND ECONOMIC TEACHERS, Spokane, Wash.
 PRESBYTERIAN HISTORICAL SOCIETY, 520 Witherspoon Building, Philadelphia, Pa.
 SOCIETY FOR THE PRESERVATION OF NEW ENGLAND ANTIQUITIES, 2 Synde Street, Boston, Mass.
 STEUBEN SOCIETY OF AMERICA, 369 Lexington Ave., New York City.
 THOMAS PAINE NATIONAL HISTORICAL ASSN., 50 West 47th Street, New York City.
 UNITED STATES CATHOLIC HISTORICAL SOCIETY, New York City.
 WOODROW WILSON FOUNDATION, 6 East 39th Street, New York City.

POLITICAL

LEAGUE FOR INDUSTRIAL DEMOCRACY, 70 Fifth Ave., New York City.
 NATIONAL DEMOCRATIC COMMITTEE.
 NATIONAL LEAGUE OF WOMEN VOTERS, 532 17th St. N. W., Washington, D. C.
 NATIONAL MUNICIPAL LEAGUE, 261 Broadway, New York City.
 NATIONAL REPUBLICAN COMMITTEE.
 WOMEN'S NATIONAL DEMOCRATIC CLUB, INC., Central Park West and 61st Street, New York City.
 WOMEN'S NATIONAL REPUBLICAN CLUB, 6 East 37th Street, New York City.

DIVISION II

INTERNATIONAL RELATIONS AFFECTING THE UNITED STATES

FOREIGN SERVICE OF THE UNITED STATES

BY HERBERT C. HENGSTLER

DIVISION OF FOREIGN SERVICE ADMINISTRATION, DEPARTMENT OF STATE

GROWTH AND DEVELOPMENT OF THE SERVICE

Consular.—From the time when Benjamin Franklin was commissioned as the first Minister Plenipotentiary of the United States of America in 1778 and Col. William Palfrey was commissioned as the first Consul in 1780, efforts have from time to time been put forth to improve the Foreign Service of the United States. Little progress was made until 1856 when Congress enacted legislation effecting various improvements in the Consular Service. No further general legislation was enacted until April 5, 1906, when the act for the reorganization of the Consular Service was passed. In 1895 President Cleveland, by executive order, provided for examinations (non-competitive) for persons selected for appointments to a portion of the consulates then maintained. However, selections for appointment were still individual. The Act of 1906 and executive orders issued by President Roosevelt at that time placed the Consular Service on a merit basis.

Classification.—This was followed Feb. 5, 1915, by an Act classifying diplomatic secretaries and consular officers, providing for their appointment to classes rather than to posts. The next important step forward was that of May 24, 1924, known as the Rogers Act, which amalgamated the two branches, diplomatic and consular, into one Foreign Service, all

officers being available for service in either diplomatic or consular offices and sharing equally in opportunity for promotion on their efficiency.

New Legislation.—While the Rogers Act was of the greatest value in building up an efficient career service and in establishing a valuable morale, it did not contain many things which experience in its administration indicated were essential. The Congress gave much consideration to the subject and as a result the latest advance step, known as the Moses-Linthicum Act, became law, on Feb. 23, 1931. The major improvements made by the law are (1) classification and merit system for clerical employees; (2) establishment of a Board and a Division of Foreign Service Personnel with carefully prescribed duties to insure impartial administration and promotions; (3) establishment of central disbursing and accounting offices; (4) maximum and minimum salary ranges in various classes; (5) statutory authorization for post and representation allowances; (6) cumulation of leave; (7) retirement at discretion of officer after service of 30 years.

FOREIGN SERVICE ADMINISTRATION

Regulations.—In connection with the Foreign Service Act of Feb. 23, 1931, the administrative regulations embodied in Executive Orders (Nos.

FOREIGN SERVICE OF THE UNITED STATES

5642/4, June 8, 1931) are of special importance. These regulations give practical effect to some of the chief purposes of the act. They set up machinery whereby it is put into operation by providing for a Board of Foreign Service Personnel, a Board of Examiners, a Foreign Service Officers' Training School, and a Foreign Service Officers' Training School Board.

Board of Foreign Service Personnel.—The duties of this board are to examine into the character, ability, efficiency, experience, and general availability of all members of the Service with a view to promotions, transfers, and separations; to consider controversies or delinquencies among Service personnel; and to recommend those officers, who have shown special capacity, for promotion to the grade of minister. The Board is composed of not more than three Assistant Secretaries of State, one of whom shall be the Assistant Secretary having supervision over the Division of Foreign Service Personnel, who shall be chairman. The Chief of the Division of Foreign Service Personnel and one other member of the division may attend the meetings of the board, but are not entitled to vote in its proceedings.

Board of Examiners.—The duties of the Board are to formulate rules for, to determine the scope and method, and hold examination of applicants for commission to the Foreign Service, and to determine those who are fitted for appointment. The examinations, which shall be both written and oral, are open only to Americans of good standing between the ages of 21 and 35 specially designated by the President for examination, who have been citizens of the United States for at least fifteen years. American clerks and employees in the Foreign Service are granted certain exceptions concerning age and may be exempted by the Board from the written examinations. The Board is composed of not more than three Assistant Secretaries of State designated by the Secretary of State, the Chief of the Division of Foreign Service Personnel, and the Chief

Examiner of the Civil Service Commission.

THE FOREIGN SERVICE OFFICERS' TRAINING SCHOOL

Purposes.—The purpose of this school is to provide a term of instruction in the Department of State as a period of probation for those successfully passing the examinations given by the Board of Examiners, and to judge, during this period, the new appointees to the Service, as to their qualifications for advancement and assignment to duty as a Foreign Service officer. The governance of the school is to be set forth in rules and regulations prescribed by the Secretary of State. The school is under the direction of the Foreign Service School Board.

Foreign Service School Board.—The duties of the Board are to act in all matters concerning the functions of the school with the approval of the Secretary of State; to select the director of the School from among the officers of the Foreign Service with the approval of the Secretary of State; and in its discretion to select other instructors from among the qualified officers of the Department of State, the Foreign Service, the executive departments of the Government, and other available sources. The Board is composed of the Assistant Secretaries of State composing the Board of Foreign Service Personnel, one Foreign Service officer assigned for duty in the Division of Foreign Service Personnel, and the director of the School.

FOREIGN SERVICE PERSONNEL

Changes.—During 1932, two examinations, one in January and one in September, have been held for appointment to the American Foreign Service. At the January examination 272 took the written tests, of whom 41 presented themselves for the oral examination, and 9 passed the examination and their names were placed on the eligible list for appointment as vacancies occur in the Service. Thirteen women took the written examination, 6 the oral, and none was successful in passing.

II. INTERNATIONAL RELATIONS AFFECTING THE U. S.

For the written examination held Sept. 26-28, 1932, 161 persons were designated to take the examination. The results of this will not be known until after the candidates appear for the oral examination in January, 1933.

Promotion From Ranks.— Since 1925, when the policy was formulated of promoting outstanding officers of the Service to the grade of Minister and Ambassador instead of recruiting them from civil life alone, there have been marked advances. During 1932, 19 of the ministers and 7 of the ambassadors representing the United States in foreign countries have been drawn from the ranks of the Foreign Service. And in addition, the Minister Resident and Consul General at Ethiopia, the Diplomatic Agent and Consul General at Tangier, Morocco, and the Minister Resident and Consul General at Baghdad, Iraq, were Foreign Service Officers.

Losses to the Service.— During 1932 there have been 4 deaths, 5 retirements, and 13 resignations from the Foreign Service. At present the Service totals 764 career officers.

CLASSIFICATION, FOREIGN SERVICE, 1933

	Salary	Number Provided for 1933
Heads of Missions		
Ambassadors.....	17,500	15
Ministers.....	12,000	2
Ministers.....	10,000	36
Foreign Service Officers		
Class 1.....	9,000	34
Class 2.....	8,000	36
Class 3.....	7,000	48
Class 4.....	6,000	60
Class 5.....	5,000	68
Class 6.....	4,500	89
Class 7.....	4,000	88
Class 8.....	3,500	64
Unclassified.....	3,000	52
Unclassified.....	2,750	57
Unclassified.....	2,500	168
Clerks—Senior		
Class 1.....	4,000	2
Class 2.....	3,750	3
Class 3.....	3,500	9
Class 4.....	3,250	16
Class 5.....	3,000	70
Clerks—Junior		
Class 1.....	2,750	71
Class 2.....	2,500	131
Class 3.....	1200-2,250	1,504

DIPLOMATIC PERSONNEL

AMBASSADORS

ACCREDITED BY UNITED STATES

ACCREDITED TO UNITED STATES

Argentina	Robert Woods Bliss	1927	Sr. Dr. Felipe A. Espil	1931
Belgium	Hugh S. Gibson	1927	Paul May	1931
Brazil	Edwin V. Morgan	1912	R. de Lima e Silva	1931
Chile	William S. Culbertson	1928	Sr. Don Miguel Cruchaga Tocornal	1931
Cuba	Harry F. Guggenheim	1929	Dr. Don Orestes Ferrara	1926
France	Walter E. Edge	1929	Paul Claudel	1927
Germany	Frederic M. Sackett	1930	Herr Friedrich W. von Prittwitz und Gaffron	1928
Great Britain	Andrew W. Mellon	1932	The Hon. Sir Ronald Lindsay, P.C., G.C.M.G., K.C.B., C.V.O.	1930
Italy	John W. Garrett	1929	Nobile Giacomo de Martino	1925
Japan	Joseph C. Grew	1932	Katsuji Debuchi	1928
Mexico	J. Reuben Clark, Jr.	1930	Sr. Dr. Don Jose Manuel Puig Casauranc	1931
Peru	Fred Morris Dearing	1930	Sr. Don Manuel de Freyre y Santander	1930
Poland	Sheldon L. Crosby (Charge d'Affaires a. i.)	1932	Tytus Filipowicz	1930
Russia			Serge Ughet, Financial Attache	1929
Spain	Irwin B. Laughlin	1929	Sr. Don Juan Francisco de Cardenas	1932
Turkey	Charles H. Sherrill	1932	Ahmet Muhtar	1927
Union of Soviet Socialist Republics				

FOREIGN SERVICE OF THE UNITED STATES

MINISTERS

ACCREDITED BY UNITED STATES

ACCREDITED TO UNITED STATES

Albania	Herman Bernstein	1930	Faik Konitza	1926
Austria	Gilchrist Baker Stockton	1930	Edgar L. G. Prochnik	1925
Bolivia	Edward F. Feely	1930	Sr. Don Enrique S. de Lozada (Charge d'Affaires a. i.)	1932
Bulgaria	Henry Wharton Shoemaker	1930	Simeon Radeff	1925
Canada	Pierre de L. Boal (Charge d'Affaires a. i.)	1932	The Hon. Wm. Duncan Her- ridge, K.C., D.S.O., M.C.	1931
China	Nelson T. Johnson	1929	Dr. W. W. Yen	1932
Colombia	Jefferson Caffery	1928	Sr. Don Fabio Lozano	1931
Costa Rica	Charles C. Eberhardt	1930	Sr. Don Manuel Gonzalez- Zaledon (Charge d'Affaires a. i.)	1932
Czechoslovakia	S. Pinkney Tuck (Charge d'Affaires a. i.)	1932		
Danzig, Free City of	Charles H. Heisler (Consul in Charge)	1932		
Denmark	Frederick W. B. Coleman	1932	Otto Wadsted	1930
Dominican Republic	H. F. Arthur Schoenfeld	1931	Sr. Don Roberto Despradel	1931
Ecuador	William Dawson	1930	Sr. Don Gonzalo Zaldumbide	1931
Egypt	William M. Jardine	1930	Sesostris Sidarouss Pasha	1931
El Salvador	Charles B. Curtis	1931	Sr. Dr. Don Carlos Leiva	1931
Estonia	Robert P. Skinner	1932	Charles Kuusik, Act. Con. Gen. in charge of Legation	1932
Ethiopia	Addison E. Southard	1927		
Finland	Edward E. Brodie	1930	L. Astrom	1922
Greece	Leland B. Morris (Charge d'Affaires a. i.)	1932	Charalambos Simopoulos	1924
Guatemala	Sheldon Whitehouse	1929	Sr. Don Adrian Recinos	1928
Haiti	Norman Armour	1932	Dantes Bellegarde	1931
Honduras	Julius G. Lay	1929	Sr. Dr. Don Ceilo Davila	1931
Hungary	Nicholas Roosevelt	1930	Count Laszlo Seechenyi	1922
Iraq	Paul Knabenschue	1932		
Irish Free State	Frederick A. Sterling	1930	Michael MacWhite	1929
Latvia	Robert P. Skinner	1932	Arthur B. Lule, Con. Gen. of Latvia in N. Y. C. in charge of Legation	1927
Liberia	Charles E. Mitchell	1930		
Luxembourg	Hugh S. Gibson	1927	Baron Raymond de Waha (Charge d'Affaires)	1920
Lithuania	Robert P. Skinner	1932	Bronius Kasimir Balutis	1928
Monaco	Robertson Honey (Consul, in Charge)	1929		
Morocco	Maxwell Blake (Diplomatic Agent)	1927		
Netherlands	Laurits S. Swenson	1931	J. H. van Royen	1927
Nicaragua	Matthew E. Hanna	1929	Sr. Dr. Don Luis Manuel Debayle (Charge d'Affaires a. i.)	1932
Norway	Hoffman Philip	1930	Halvard H. Bachke	1927
Palestine	Alexander K. Sloan (Consul, in Charge)	1932		
Panama	Roy T. Davis	1929	Sr. Dr. Horacio F. Alfaro	1932
Paraguay	Post Wheeler	1929	Sr. Don Pablo M. Ynsfran (Charge d'Affaires a. i.)	1929
Persia	Charles C. Hart	1929	Yadollah Azodi (Charge d'Affaires)	1931
Portugal	John Glover South	1929	Viscount d'Alte	1902
Rumania	Charles S. Wilson	1928	Charles A. Davila	1929
San Marino	Joseph E. Haven (Consul, in Charge)	1925		
Siam	David E. Kaufman	1930	Phya Subarn Sompatti	1932
Sweden	John Motley Morehead	1930	W. Bostrom	1926
Switzerland	Hugh R. Wilson	1927	Marc Peter	1920
Syria	Herbert S. Gould (Consul General, in Charge)	1930		
Union of South Africa	Ralph J. Totten	1930	Eric Hendrik Louw	1929
Uruguay	J. Butler Wright	1930	Dr. J. Varela	1920
Venezuela	George T. Summerlin	1929	Sr. Dr. Don Pedro Manuel Arcaya	1930
Yugoslavia	John Dyneley Prince	1926	Dr. Leonide Pitamic	1929

II. INTERNATIONAL RELATIONS AFFECTING THE U. S.

UNITED STATES TREATIES

By DENYS P. MYERS

DIRECTOR OF RESEARCH, WORLD PEACE FOUNDATION

GENERAL

The disturbing conditions which prevailed in 1932 were reflected in the production of treaties, which were relatively few in number and of formal importance rather than of constructive import. From December, 1931, to December, 1932, only 14 treaties entered into force; the routine of international agreement was, however, kept somewhat up to average by the completion of 18 executive agreements, which are now frankly described as "acts of the Executive without reference to the Senate." While the machinery for producing international agreement was thus lagging at Washington, some of the most important negotiations of history were working toward the perfection of treaties in which the United States was intending to participate fully,—the Conference for Limitation and Reduction of Armaments and the World Monetary and Economic Conference.

MULTILATERAL CONVENTIONS

Red Cross and Prisoners of War.—International relations in these days are given character by the numerous open multilateral conventions. Of this type two came into force Aug. 4, 1932,—the conventions on amelioration of the condition of the wounded and sick of armies in the field (Red Cross convention) and on prisoners of war, both signed at Geneva, July 27, 1929. The Red Cross convention brings up to date those of 1864 and 1906 and is a competent codification of humanitarian privileges. The convention on prisoners of war brings to reality negotiations undertaken prior to the armistice; it goes far to making a prisoner's life a happy one. Both are "open" multilateral, and by ratification or accession will become practically universal.

International Law.—The Habana conference of American states pro-

duced many conventions which have been regarded as representing a demonstration in the codification of international law. On Feb. 8, 1932, the one on consular agents came into force for the United States with respect to Brazil, Mexico, Nicaragua and Panama. It defines the appointment, functions and prerogatives of consuls in quite general terms. A convention on maritime neutrality has been in force since March between the United States, Bolivia, Nicaragua and Panama. The future of these conventions, already four years old, depends upon whether Latin American states will generally ratify them.

Shipping Regulations.—On Jan. 1, 1933, there entered into force the international loadline convention between 15 states by virtue of deposits of ratifications Oct. 1, 1932. This able and elaborate treaty on the entire technical problem of determining the burden shipping should carry was signed at London July 5, 1930, and entailed definite revision of national laws and regulations before it could be applied. It marks a point of development in a field that has required attention for 50 years. Governments at first had a reluctance to give up any amount of control over shipping regulations, and the first international agreements effectively consisted of the enactment of identical legislation. The 1930 convention is a genuine multilateral treaty. It has, however, been preceded by a series of executive agreements recording in exchanges of notes that the respective states have found their national regulations mutually the same or equivalent and reciprocally accept their certificates pending the operation of the convention. This transitional step from national to international standard has been arranged by the United States in 1932 with eight governments,—Belgium, Denmark,

UNITED STATES TREATIES

Germany, Iceland, Irish Free State, Italy, Netherlands and Sweden.

Safety at Sea.—Also on January 1, 1933, the convention on safety of life at sea came into force. Under its unsuccessful and much inferior predecessor the United States has since 1914 been conducting the north Atlantic ice patrol, practically at its own expense. It was signed at London May 31, 1929, but the Senate has delayed giving its advice and consent to its ratification.

ARBITRATION AND CONCILIATION TREATIES

The United States did not advance the international structure of pacific settlement of international disputes during 1932. The six documents coming into force were arbitration and conciliation treaties with Egypt, signed Aug. 27, 1929, and with Greece, signed June 19, 1930, and two other documents of some interest. One of the Bryan treaties was made with Italy in 1914, the commission consisting of five persons, a national and non-national appointed by each party and a president jointly appointed. By a modification signed Sept. 23, 1931, Italy and the United States will each appoint a national, and the other three commissioners will be jointly appointed; the result is a commission slightly more independent of the parties and, as to the United States, an acceptance of a technical improvement generally practiced in Europe. Switzerland believes in, as well as talks about, pacific settlement. As far back as 1883 it proposed to make an arbitration treaty with the United States, but Washington could not make the grade. In 1928 the United States was able to approach the accomplishments of European states by linking a limited arbitration treaty with the Bryan treaties, and since then has secured 33 pairs of arbitration and conciliation treaties. Switzerland declined to cut its engagement into two parts, and after three years the Department of State consented to embody both formulas in a single arbitration and conciliation treaty, which

was signed Feb. 16, 1931, passed the Senate without difficulty April 29, 1932, and entered into force May 23. It is the best and simplest engagement of the sort the United States has accepted.

WORLD COURT

Throughout the year the three protocols requiring action before American accession to the Permanent Court of International Justice were pending in the Senate. On June 1 they were reported out of the Committee on Foreign Relations with a bipartisan recommendation for action on a rather complicated resolution of advice and consent. The question was first on the executive calendar through June and July, being passed over because there was not time for the opponents to have their say. Planks favorable to action appeared in both party platforms prior to the election, and so the requisite decision was due within ten years since the matter first reached the Senate in February, 1923.

INTER-AMERICAN ARBITRATION

On Jan. 19, 1932, the Senate advised and consented to ratification of the general treaty of inter-American arbitration of Jan. 5, 1929, under conditions which led to a protest by Senator LaFollette and which ruined its object. The President did not proceed with ratification. The Optional Clause of the Permanent Court has the effect of making parties to it suable within the terms of their declarations. The inter-American treaty created a similar situation under an arbitral jurisdiction for the states of this hemisphere. It creates a direct obligation to submit to arbitration and is based upon the proposition that disputes over the interpretation or application of treaties are *a priori* arbitrable. The Senate resolution would make arbitration possible only with the specific advice and consent of the Senate and excludes application of the treaty to controversies arising out of the hundred or more treaties now in force.

II. INTERNATIONAL RELATIONS AFFECTING THE U. S.

TREATY OF FRIENDSHIP WITH NORWAY

The most important bilateral treaty to come into force was that of friendship, commerce and consular rights with Norway, signed June 5, 1928, effective Sept. 13, 1932. It contains the unconditional most-favored-nation clause in force with over 30 countries. The Senate had a debate on the clause when the treaty and that with Poland of June 15, 1931 (not yet in force), were before it. The clause was applied by exchange of notes with Chile and Bulgaria through executive agreements in 1932.

EXTRADITION TREATIES

Great Britain.—Two extradition treaties came into force, with Great Britain Aug. 4 and Greece Nov. 1. Each has its interest. Owing to the closeness of relations the schedule of extraditable crimes had been frequently revised with London, and there were some half dozen treaties embodying the whole mechanism. The treaty of Dec. 22, 1931 consolidated all this.

Greece.—The treaty of May 6, 1931, was the first with Greece and both countries had ratified it but not exchanged ratifications in October, 1932, when Samuel Insull, a public utilities operator whose inflated structure had become bankrupt, went to Greece after indictment in Chicago. The entrance of the treaty into force was the signal for its immediate application to a case of considerable importance and much public interest.

EXECUTIVE AGREEMENTS

The executive agreements continue to record conventional engagements of the recent past. The agreement recognizing Chinese courts in the International Settlement at Shanghai, signed Feb. 17, 1931, was published in this form only in September, 1932.

Mostly, however, the delay in publishing executive agreements is accounted for by the fact that the exchanges of notes of which they consist extend over a considerable period of time. Subjects dealt with in them indicate the wide range of modern international relations. With Germany and the Union of South Africa there were arrangements as to the reciprocal recognition of certificates of airworthiness for imported aircraft. With Canada there was an arrangement relative to radio broadcasting. The customs treatment of importations for consular offices and officers was arranged with Norway. Air navigation is very fully covered in an arrangement with Germany. Aeronautical trade was the subject of one with Belgium.

MORTALITY OF TREATIES IN THE SENATE

The question has been often asked what mortality do treaties suffer in the Senate. An answer to that question was made available by the Department of State as of Oct. 1, 1932, in a "List of Treaties Submitted to the Senate 1789-1931, Which Have not Gone into Force." The list closes with the 71st Congress, ending March 4, 1931, a date when some 840 treaties had been in force during the country's life. Out of 228 treaties which had not gone into force in the 142 years, six were transmitted to the Senate for information only and 17 were withdrawn. Of the remaining 205, the Senate accepted 45. There were, then, 160 treaties whose failure might be attributed to the Senate. Only 12 of that number were rejected by that body. It amended 57, presumably so that either the President or the other party became unwilling to proceed with ratification. In the case of 91 the Senate took no final action. A few of the last class, like the Court protocols, may eventually be accepted and ratified.

THE UNITED STATES AND WORLD AFFAIRS

THE UNITED STATES AND WORLD AFFAIRS

BY JOHN M. MATHEWS

PROFESSOR, UNIVERSITY OF ILLINOIS

THE SINO-JAPANESE IMBROGLIO

Application of Nine Power Treaty.

—By the Nine Power Treaty of 1922, signatory parties, including the United States and Japan, agreed to respect the territorial and administrative integrity of China. The military penetration of Manchuria by Japan in 1931 seemed on its face to be in violation of this undertaking. The Nine Power Treaty provides that, whenever a situation arises involving, in the opinion of any of the signatory parties, the application of the treaty, "there shall be full and frank communication between the contracting powers concerned." By the Kellogg-Briand Pact of 1928, the parties, including Japan, agreed not to settle their international disputes except by peaceful means. The terms used in the Pact were not defined, nor were any means of enforcement expressly indicated.

U. S. Statement of Policy.—At the time of the military invasion of Manchuria by Japan in apparent derogation of the Nine Power Treaty, neither the United States nor Japan elected to resort to the "full and frank communication between the contracting powers" stipulated therein. They dealt with the situation rather through the machinery of the League of Nations. As pointed out in THE AMERICAN YEAR BOOK for 1931, the United States cooperated with the League organs in endeavoring to work out a solution of the difficulty. This attempt, however, did not meet with success and on Jan. 7, 1932, the United States adopted a more independent attitude and policy in the communication addressed by Secretary of State Stimson to the Chinese and Japanese Governments. In this note it was declared that the United States "cannot admit the legality of any situation de facto, nor does it intend to recognize any treaty or agreement entered into between those govern-

ments, or agents thereof, which may impair the treaty rights of the United States or its citizens in China, including those which relate to the sovereignty, the independence, or the territorial and administrative integrity of the Republic of China, or to the international policy relative to China, commonly known as the open door policy; and it does not intend to recognize any situation, treaty or agreement which may be brought about by means contrary to the covenants and obligations of the Pact of Paris." In other words, the United States refused to recognize the results of any situation brought about in violation of either the Nine Power Treaty or of the Kellogg-Briand Pact. In this respect we took a more advanced position than had then been taken by the League of Nations or by any other government.

League of Nations Procedure.—In regard to the Far Eastern conflict the League of Nations had adopted a hesitating and vacillating policy. Its principal members, Great Britain and France, were apparently loath to take any action which might offend Japan and they were, therefore, willing to allow the United States to take the lead in defending the international peace machinery against Japan's aggressive tactics. In February, however, the twelve members of the League Council, aside from the representatives of Japan and China, sent a note to Japan calling her attention to Article X of the League Covenant and declaring that no territorial infringement in violation of that article ought to be recognized by the members of the League of Nations. On March 11 the League Assembly adopted a resolution declaring "that it is incumbent upon the members of the League not to recognize any situation, treaty, or agreement which may be brought about by means contrary to the Covenant of the League of Nations

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or the Pact of Paris." Thus a majority of the members of both organs of the League adopted the American doctrine or policy with reference to the Far Eastern situation. The United States and the League joined hands in presenting a united front in support of the principle contained in Article X, a provision which President Wilson once declared to be the very heart of the Covenant. Although this position was taken with special reference to the Far Eastern situation, it is capable of more general application and, as Secretary Stimson stated, places a caveat upon aggressive action in violation of treaties which "will effectively bar the legality hereafter of any title or right sought to be obtained" by such action. In accordance with this principle, the United States and the other nations, with the exception of Japan, have refused to recognize the puppet state of Manchoukuo created by Japan in Manchuria. This course has been pursued by the United States while maintaining diplomatic relations with Japan, but if Manchoukuo should be formally annexed by Japan, a new situation would be created which would seriously strain the nominally friendly relations between Japan and the United States.

Lytton Commission.—In an effort to reach a settlement of the controversy between China and Japan, an international commission was appointed under the auspices of the League of Nations with Lord Lytton of England as its head and Major-General McCoy, U. S. A., as one of its members. Although General McCoy served with the acquiescence of the American Government, it was declared that he did not officially represent it. Before the Lytton Commission made public its report, Japan recognized the puppet state of Manchoukuo as independent and entered into treaty relations with her. When the report of the Commission was finally published early in October, it was found to condemn the aggressive tactics of Japan but did not leave China entirely blameless. The report justified the non-recognition

policy of the United States in holding that the occupation of Manchuria by Japan was contrary to existing obligations. The report further declared that "the maintenance of the present regime in Manchuria . . . does not appeal to us as compatible with the fundamental principle of existing obligations, nor with the good understanding between the two countries upon which peace in the Far East depends." An important part of the report consisted of constructive proposals, among which was international cooperation in Chinese reconstruction. It also recommended the reform of the Chinese judicial system and the eventual abolition of the right of extra-territoriality still enjoyed by the United States and other Western nations.

American-Japanese Diplomacy.—During the controversy between the Western nations and Japan over her policy in China, the leading European powers, and also the League of Nations dominated by them, seemed inclined to take no positive action which might offend Japan but rather to allow the United States to take the lead to the extent at least of expressing distrust of Japan's pacific intentions in China and Manchuria. This backwardness of European powers was carried to such an extent that the situation developed into a diplomatic contest between Japan and the United States, with the latter taking the side of China in her opposition to Japanese aggression. On account of her disorganized condition, however, China was likely to prove a weak reed to lean on in this contest. Nevertheless, the United States was not meddling with things that did not concern her in taking an active part in regard to the Far Eastern situation. In the first place, any disturbance of the peace in that region contains possibilities of unsettling conditions throughout the world. Furthermore, as a party to the Nine Power Treaty and as one of the originators of the Kellogg-Briand Pact, the United States naturally has a special responsibility in maintaining the principles of those treaties.

League Assembly Committee.—In November the report of the Lytton Commission was taken under consideration by the League of Nations Council, which subsequently referred the matter to the Assembly. With the exception of the representatives of some of the smaller nations, the attitude of the League seemed to be that the proper course was not censure of Japan but rather an attempt at conciliation. With this object in view, a committee of nineteen of the Assembly was created. This committee was reported in December to have drafted a resolution which (1) reaffirmed the Assembly resolution of March asserting the doctrine of non-recognition of territorial gains brought about by force (2) accepted those parts of the Lytton report which suggested an autonomous regime for Manchuria; and (3) invited the United States and Russia (the only important non-members of the League) to participate in the process of conciliation. It was understood, however, that Japan was opposed to the extension of this invitation, ostensibly on juridical grounds.

THE KELLOGG PACT

Consultative Feature.—The Far Eastern imbroglio between China and Japan brought about further consideration of the Kellogg-Briand Pact in order to determine its applicability to this situation. The Pact prohibits war as an instrument of national policy, but contains no express indication as to what sanctions should be applied in case a contracting party goes to war in violation of its provisions. It would seem that the Pact should be construed as implying that, under these circumstances, the other contracting parties should at least consult with each other as to what steps might appropriately be taken to meet this situation. Prior to the invasion of Shanghai and Manchuria by Japan, the United States Government had evinced some hesitation about even going to the extent of entering into consultation with the other powers. The situation in the

Far East, however, disclosed the fact that this position was hardly tenable. Even the national party platforms, usually rather timid in dealing with questions of foreign policy, adopted the position that consultation was a necessary corollary to the Pact. Thus, the Democratic platform advocated that the Pact "be made effective by provisions for consultation and conference in case of threatened violation of treaties" while the Republican platform declared that "we favor enactment by Congress of a measure that will authorize our government to call or participate in an international conference in case of any threat of non-fulfillment of Article 2" of the Pact.

American Interpretation.—Shortly after the adoption of these platforms, Secretary of State Stimson made an address on Aug. 8 before the Council on Foreign Relations in New York City in which he recognized that consultation between the signatory powers is implied whenever the provisions of the Pact are threatened with violation. After recalling his note of Jan. 7 that the United States would not recognize any situation, treaty, or agreement which might be brought about contrary to the obligations of the Pact, he proceeded to declare that the Pact had developed to the point where "consultation between the signatories of the Pact when faced with the threat of its violation becomes inevitable." He pointed out that the Pact provides for no sanctions of force but rests instead upon the sanctions of public opinion, and then declared that "any effective invocation of the power of world opinion postulates discussion and consultation." Since the Pact necessarily implies consultation, he intimated that there is no need of implementing it by inserting a formal provision to that effect. He also took the position that the former concept of international law whereby, when a conflict occurred between two nations, the others could only exercise a strict neutrality alike toward the injured and the aggressor is outworn since the adoption of the Pact. Now "such a conflict becomes of concern

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to everybody connected with the Pact."

Weaknesses in the Pact.—In spite of the more advanced position thus taken by our Government, the Far Eastern situation disclosed certain weaknesses in the Pact. That instrument does not define war and impliedly permits wars of self-defense. Every nation, when going to war, claims to be acting in self-defense and, as already pointed out, no satisfactory definition of the aggressor has yet been formulated. Japan never issued any formal declaration of war against China. Japan claimed that if her course could be denominated war, then it was one of self-defense instigated by China's economic boycott against her goods. Moreover, Japan claimed that China was so disorganized and disorderly as hardly to deserve the appellation, state, in the proper sense of the word and, consequently, that she was engaged not in international war but in intervention for the restoration of order, a practice frequently indulged in by European nations in backward regions of the world.

Proposed Amendment.—In the light of these contentions Japan was afforded some basis for arguing that the Pact was not applicable to the situation and that consequently she had not violated it. This situation points to the need of strengthening the Pact and making it more explicit and far reaching. One suggestion for improvement, attributed to Sir John Simon, the British foreign minister, is to amend the Pact so as to make it prohibit not war but all use of force for settling international disputes. This amendment might not fully meet the needs of the situation, but it would at least deprive an aggressive nation of the argument that she does not violate the Pact merely because she does not issue a formal declaration of war.

THE UNITED STATES AND THE LEAGUE OF NATIONS

As already pointed out, the aggressive action of Japan in Manchuria resulted in bringing the United States

into close association with the organs of the League of Nations in an effort to arrive at a solution of the difficulty. In his identic notes of Jan. 7, Secretary of State Stimson declared the unwillingness of the United States to recognize any situation brought about by means contrary to the Kellogg-Briand Pact. The Assembly of the League joined forces with the United States by adopting on March 11 a resolution of similar purport. There is no need to minimize the importance of this movement for the United States to work in closer association and cooperation with the League. Nevertheless, it should be pointed out that our Government, mindful of the political strength of anti-leaguers in this country, did not forget that the United States is not a member of the League. We evinced a willingness to cooperate with the League, especially in connection with its efforts to settle the Manchurian dispute, but we declined to participate in the work of agencies acting under the Covenant of the League. Thus, we declined the invitation to participate through our consul in the work of the Shanghai Commission composed of consular representatives in that city of the states having membership in the Council of the League. The American Government apparently preferred to deal directly with the great powers, and especially with Great Britain, in connection with the Shanghai situation, rather than with the League. The views of our Government regarding this situation were communicated to the Council of the League through the British foreign minister, Sir John Simon.

Broadly speaking, it will be seen that the United States sometimes played a subordinate rôle with reference to the Far Eastern situation and at other times took a somewhat dangerous position of isolated leadership, seeming to oppose the pretensions of Japan on behalf of the whole Western world. This vacillating policy was not calculated to improve the already strained relations between the United States and Japan. The League was hampered in dealing with

the Far Eastern question by doubt as to whether the United States would maintain trade relations with Japan in case the League should attempt to apply a blockade to that country and as to whether the United States would cooperate with the League in placing an embargo on loans to Japan and her puppet state, Manchoukuo. The apparent weakness of the League in dealing with the Far Eastern situation, however, was not attributable solely to uncertainty as to the attitude of the United States. It was also due in part to political sympathy with Japan on the part of the leading League powers, Great Britain and France. The small powers in the League favored taking a more definite stand against Japan's aggressive tactics, but upon them would not rest the main responsibility for backing up such a stand. Under these circumstances it hardly seemed desirable for the United States to assume the rôle of the only great power actively opposing Japan.

DISARMAMENT

Geneva Conference.—The much-heralded world disarmament conference met in Geneva in February under extremely unfavorable circumstances. Among these was the war cloud in the Far East and the apparent ineffectiveness of the League of Nations and other peace machinery in dealing with that situation. This did not tend to increase the general confidence in the capacity of such machinery to maintain peace in the world generally, with the result that nations were more inclined to depend on the strength of their own arms for security than upon international action or agreement for the limitation of armament.

American Proposals.—The United States was represented at the conference by an able delegation, headed by Ambassador Hugh Gibson. National differences in attacking the problem soon presented themselves. The French maintained their perennial thesis that security must precede disarmament and advocated the placing of armed forces at the disposal of the League. Such international

control of arms, however, was not acceptable to the United States nor to the British Government. The United States had also opposed approach to the problem by the method of budgetary limitation, but was destined to recede to some extent from this position. The specific American proposals were presented to the conference on February 9 by Ambassador Gibson, the more important of which were: (1) the extension of the Washington and London naval agreements and proportional reduction of naval tonnage from the figures laid down therein; (2) the total abolition of submarines, chemical and bacteriological warfare and special restrictions on the use of bombing planes, tanks, and heavy mobile guns, which are peculiarly offensive in nature; and (3) consideration of limitation of expenditure on material as a complementary method to direct limitation. In addition to these proposals, the American delegation was also requested in the Fish resolution, reported by the Foreign Affairs Committee of the House of Representatives in March, "to propose a multilateral agreement renouncing the sale or export of arms, munitions or implements of war to any foreign nation." Late in June new American proposals were laid before the conference by Mr. Gibson and simultaneously announced by President Hoover at the White House. The central feature of these proposals was a reduction by one-third of the armament burden of the world. They also went further than the original proposals in suggesting the total abolition of tanks, bombing planes, and heavy mobile guns in order that armaments may be reduced to a defensive footing. They recognized that the Kellogg-Briand Pact implies that arms are to be used only for defense. Since the nations have renounced offensive warfare, it seems inconsistent that they should retain in their armament weapons of a peculiarly offensive character.

Armament Reduction Resolution.—The Hoover proposals served to infuse new life into the conference but difficulties were encountered in working out details and little definite

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progress was accomplished. The force of President Hoover's proposals was minimized by the suspicion that they were put forward partly for home consumption in view of the approaching presidential election and partly in order to furnish a bargaining basis when European nations should apply to Washington for reduction of the allied war debts. Nevertheless, certain forces were working to assist the conference in performing the enormous task for which it was called. Among these were the public opinion of the world which demanded tangible results and the world-wide economic depression which rendered the burden of huge armaments even more staggering to the peoples of the world. Late in July the conference ended the first phase of its labors by adopting a resolution declaring in principal that "a substantial reduction of world armaments shall be effected to be applied by a general convention alike to land, naval, and air armaments; and that a primary objective shall be to reduce the means of attack." The bureau or steering committee of the conference met in September to prepare for the reconvening of the full conference in 1933.

THE WAR DEBTS

Recapitulation.—As pointed out in *THE AMERICAN YEAR BOOK* for 1931, postponement for one year in the regular payment of allied war debts to the United States was brought about by the Hoover moratorium beginning in July of that year. This step virtually recognized that (1) the economic depression had affected the ability of European countries, including Germany, to pay intergovernmental debts, and (2) that debts and reparations were parts of the general problem of intergovernmental payments. In October of that year conversations took place in Washington between President Hoover and Premier Laval of France which resulted in an official statement that "in so far as intergovernmental obligations are concerned, we recognize that, prior to the expiration of the Hoover year of postponement, some agreement regarding them may be necessary cover-

ing the period of business depression." In spite of these developments, however, the United States continued in official statements to deny that reparations and war debts were related. Our government also intimated that it would look with disfavor upon the formation by the European debtor nations of a united front in approaching the United States. If the debts are to be revised, it must be done by separate agreements. President Hoover recognized that further adjustments of the debts might be necessary and, for this purpose, recommended the recreation of the World War Foreign Debt Commission, but to this suggestion Congress turned a deaf ear. Congress ratified the Hoover moratorium, but at the same time attached a resolution declaring against cancellation or reduction of foreign governmental indebtedness.

Lausanne Conference.—In June, 1932, a conference on reparations met at Lausanne attended by Germany and the nations to which she owes reparations, *viz.*, Great Britain, France, Belgium, and Italy. This conference reached agreement upon a treaty which very materially reduced the amount of German reparations. Ratification of this treaty, however, was made contingent upon reduction of the war debts owing to the United States. This seemed to be an attempt on the part of European debtor nations to force the hand of the United States, but no further action on the debts was taken until after the presidential election in November. Meanwhile, however, plans were forming for the holding of a world economic conference, but the United States let it be known that it would not consent to the discussion in such conference of war debts, reparations, or tariff rates. Therefore some of the most important world economic questions would be withdrawn from consideration, thus rendering the conference largely unable to grapple with the situation.

U. S. Refusal to Extend Payments.—Since the Hoover moratorium was not renewed, payment of installments on the European debts to the United States became due Dec. 15. Immedi-

ately after the presidential election, several European debtor nations sent communications to the American Government asking revision of the debts and postponement of the December 15 payments pending an exchange of views on the subject. The Hoover administration declined to agree to this postponement, on the ground that no change in the letter of the debt agreements could be made without the consent of Congress, but at the same time indicated a willingness to consider requests from the debtors to discuss the debts and recommended that Congress create an agency to represent the United States in exchanging views with the debtor governments. Congress, however, showed no inclination to adopt this recommendation. President-elect Roosevelt indicated that in his opinion such Congressional action was unnecessary because the President has ample constitutional power to negotiate with foreign nations.

Payments and Defaults.—Further interchange of notes took place between the United States and the debtor governments but, when Dec. 15 arrived, it was found that Czechoslovakia, Finland, Great Britain, Italy, Latvia, and Lithuania had met their payments while Austria, Belgium, Estonia, France, Greece, Hungary, and Poland had failed to pay. In view of this situation President Hoover on Dec. 19 sent a communication to Congress in which he discussed the debt question in relation to the world economic situation. In giving the reasons why our government declined to postpone the debt payments, he stated, among other things, that such action "would create a situation where debts would have been regarded as being a counterpart of German reparations and indemnities, and thus not only destroy their individual character and obligation but become an effective transfer of German reparations to the American taxpayer" and "would not be a proper call upon the American people to further sacrifices unless there were definite compensations."

President Hoover's Position.—The President then proceeded to indicate the nature of possible compensation

by pointing out that "except in one country the taxation required for the payments upon the debts owing to our government does not exceed one-quarter of the amounts now being imposed to support their military establishments. As their maintained armaments call for a large increase in expenditures on our defensive forces beyond those before the war, the American people naturally feel that cancellation of these debts would give us no relief from arms, but only free large sums for further military preparations abroad." In conclusion the President suggested the desirability of creating an interlocking commission to deal with the question of the debts and also to attend the arms conference and the forthcoming world economic conference. Inasmuch as the solution of these questions must extend beyond his administration, he proposed to seek the cooperation of President-elect Roosevelt in "the organization of machinery for advancement of consideration of these problems."

THE UNITED STATES AND LATIN-AMERICA

Nicaragua.—Two developments of interest to the United States occurred during the year. One was the continuous fighting against the Sandinista rebels participated in by the National Guard, under the command of United States marines, in which several of the latter lost their lives. The number of American marines in the country was increased to about 1,000. Another event of interest was the holding of the presidential election in November under the supervision of the United States Election Mission, of which the chairman was Admiral C. H. Woodward, who was designated by our Government and confirmed by the Supreme Court of Nicaragua. The election occurred without disorder and resulted in the selection of Dr. Juan B. Sacasa, the Liberal candidate, to succeed President Moncada. The rebel leader, Sandino, was reported as refusing to recognize the result of an election conducted under foreign supervision.

Haiti.—Our government continued during 1932 to carry out its policy

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of eventually abandoning American supervision of Haitian affairs. By a treaty signed in September, American military supervision is to be withdrawn by 1934 and American financial supervision is also to be reduced. This treaty was designed to take the place of the treaty of 1915. It was, however, rejected by the Haitian National Assembly. Although the United States continues its policy of the Haitianization of the Garde, the rejection of the treaty may postpone to 1936 the accomplishment of this purpose.

Gran Chaco.—In view of hostilities between Bolivia and Paraguay over the disputed Gran Chaco territory, representatives of five neutral nations (the United States, Cuba, Colombia, Mexico, and Uruguay) met at Washington in an effort to reach an acceptable basis for a truce. It was

reported that the League of Nations was also watching the situation closely, and had appointed a committee to consider the dispute. This committee proposed that the League Council recommend sending an international military commission to make an investigation at the scene of hostilities; it also suggested calling attention of governments to the importance which shipments of arms play in aggravating the conflict. These suggestions were approved by the League Council and passed on to the neutral committee sitting in Washington. As a result of this situation, it was reported, Dec. 20, that President Hoover was preparing to ask Congress for authority to declare an embargo on the shipment of arms to any country regarded as constituting a potential or actual threat to international peace.

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By GRAHAM H. STUART

PROFESSOR, STANFORD UNIVERSITY

ECONOMIC PROBLEMS

Trade Decline.—During 1932 the depression brought up a number of serious problems to trouble the friendly relations between the United States and Latin America. The high rates of the Smoot-Hawley tariff and the retaliatory duties imposed by many of the Latin-American Republics have aided materially in reducing the value of trade between them and the United States. Estimates indicate that the reduction of United States exports to South America may be as much as 100 per cent more for 1932 than for 1931.

South American Customs Union.—This situation became so serious that a number of proposals were made to call a conference of South American States to organize against the United States, either by means of reprisals or by a customs union, which might afford a united front. Peru and Chile, which have been particularly injured by the increase in United States

tariff rates on copper by action of Congress in May, took the lead. The Peruvian foreign minister announced the beginning of diplomatic negotiations by the leading republics for the formation of a customs union for united defense and concerted reprisals against the United States. A bill was introduced in the Peruvian Congress to place a surcharge of 300 per cent *ad valorem* on all imports from the United States. Another proposal was made for the formation of a customs union embracing Argentine, Chile, Uruguay, Paraguay, and Bolivia.

Bond Defaults.—The decline in the prices of such commodities as nitrates, coffee, copper, cotton, tin, and sugar rendered the financial status of the South American States so uncertain that the Financial Committee of the United States Senate announced that on Jan. 1, defaults or moratoria had been declared on more than \$800,000,000 worth of South American bonds.

Senate Investigation.—The so-called

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Johnson investigation on foreign loans was suspended Jan. 27, but not before it had brought to light some rather unusual transactions. Perhaps the most remarkable was the divulging of the payment of \$415,000 to Juan Leguia, son of President Leguia of Peru, for the placing of a \$100,000,000 loan to the Seligmans. The whole question of the policy of the State Department in disapproving or failing to disapprove foreign loans received a searching examination and considerable opposition was aroused towards its continuance.

Mexican Debt.—In the case of Mexico, whose national income had so diminished that payment on her foreign debt became impossible, the moratorium was extended from July 25, 1932 to Jan. 1, 1934. The postponement was arranged by the International Committee of Bankers in Mexico and the Mexican Ministry of Finance in New York. Furthermore, the \$5,000,000 deposited in New York after the agreement of July 25, 1930, which had subsequently been returned to Mexico to stabilize exchange, is to remain in Mexico until July, 1933, and then be returned to the credit of the bankers' committee and be applied on the first year's payments.

Mexican State Expropriation Laws.—Foreign investors were much disturbed during the year by the laws enacted by the states of Hidalgo, Vera Cruz, and Michoacán providing for the purchase of private property for public purpose upon the payment of a nominal cash payment, with the rest payable over a twenty-year period. President Ortiz Rubio on June 17 notified these states that such expropriation laws were unconstitutional and in a later statement asked the governors of other states to cooperate to prevent the passage of similar laws. The governors of Vera Cruz and Hidalgo were not willing to revoke the laws and it was decided to take the case of an expropriated British-owned cement plant to the Supreme Court.

Mexican Banking Law.—On June 29 President Ortiz Rubio promulgated a general credit and banking law which required foreign banking institutions doing business in Mexico to

submit themselves to the exclusive jurisdiction of Mexican courts. All foreign banks were to operate under Federal concessions revokable if the majority of shares should pass to a foreign government or if the bank should make representations through any foreign chancellory. The Mexican treasury, by a decree of Sept. 22, indicated its intention of returning to the gold standard.

Cuban Financial Situation.—Although Cuba seemed to be suffering more from the political unrest engendered by the dictatorial policies of President Machado than from the economic situation, the low price of sugar was a very great handicap to balancing the budget. Professor E. R. A. Seligman, of Columbia, was invited to make a study of the Cuban fiscal system and suggest a more equitable tax basis. His report provided for a complete reform furnishing a revenue of about \$122,000,000 in normal years. Through a loan of \$2,500,000 from American banks, Cuba was able to pay the interest and amortization of all foreign obligations at the end of the fiscal year (June 30). Cuba's total debt in August, excluding sugar stabilization bonds, was \$153,754,000. The Cuban sugar crop was fixed at 2,700,000 tons by presidential decree to meet the recommendations of the Cuban Sugar Institute, the official representative of the Chadbourne plan. American exports seemed to be particularly aimed at by a tariff increase on March 17 on automobiles, trucks, and lard.

THE UNITED STATES IN THE CARIBBEAN

Nicaraguan Elections.—Following its custom in recent years, the United States agreed to supervise the November presidential elections in Nicaragua. Rear Admiral Clark Woodward, U. S. N., was designated as chairman of the Board of Elections and 500 marines were sent to assist in conducting the registration and election duties. In a public statement Admiral Woodward declared that the "sole interest of the United States . . . is that by means of fair and open elections at which all entitled to vote

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might do so, the preference of the Nicaraguan people may be freely expressed." Admiral Woodward was forced to intervene twice during July to preserve harmony during the nominating campaigns. The Conservatives nominated former president Adolfo Díaz for president and former president Chamorro for vice-president. The Liberals chose Dr. Sacasa for president and Señor Espinosa for vice-president. The elections occurred Nov. 6, with practically no disorders. Dr. Sacasa, regarded as less friendly to the United States, was elected by a majority of about 23,000 over his opponent, Díaz. The total vote cast was 129,508. The *Nueva Prensa*, a leading newspaper, declared that Admiral Woodward had maintained an impartial attitude and had obtained a free, just, and honest election.

Sandino.—Through the year the Sandistas still held the field against the government forces and the United States marines. Numerous skirmishes occurred with casualties on both sides. In a raid near Ocotal in April, four United States marines and a lieutenant were killed. Senator Lewis, of Illinois, thereupon introduced a resolution demanding the immediate withdrawal of all American troops. The attacks became more frequent in the fall and following the presidential election, General Sandino gave notice that he refused to recognize the new Sacasa government. However, there were rumors that he might come to terms after all the American marines were withdrawn and accept a position as minister to Mexico.

Withdrawal of Marines.—It was stated by the State Department that about 1,400 men and officers were kept in Nicaragua until the elections. Thereafter the withdrawals were steady, inasmuch as the election ended the present commitment of the United States in Nicaragua. A Washington dispatch of Dec. 1 declared that, on Nov. 30, 250 marines left for the United States, leaving a total of 749 officers and enlisted men. These were to be withdrawn Jan. 2, 1933, the day after the inauguration of President Sacasa. However, plans were still to

be worked out for the sending of a small military mission.

Senate Investigates Haiti.—The opposition to the United States policy in Haiti was increased by certain revelations made before the Senate Financial Committee. On Feb. 10, Georges Leger testified that the United States financial advisers had been dictators and had compelled Haiti to ask for loans. He declared that Brig. General Russell had prevented the reelection of President d'Artiguenave in 1922 because he opposed a loan. He claimed that the National City Bank had profited by \$2,000,000 to \$3,000,000 through the purchase of depreciated Haitian Railway bonds, when acting as financial agent for the government. He asserted that the present financial adviser was without legal authority, since the act of 1917, extending the treaty to 1936, had never been ratified either by Haiti or the United States. Finally, he declared that a loan of \$16,000,000 had been forced upon Haiti to permit the United States to extend financial control until 1953, when the loan matured. Secretary Stimson, on Feb. 16, declared that General Russell had nothing to do with the election of d'Artiguenave and in a further statement the State Department showed that as a result of American administration of Haiti's foreign debt, which amounted to \$24,182,000 in 1915, it had been reduced to \$14,329,161, while the internal debt of \$7,514,686 had been changed to a surplus of \$3,292,568.

Withdrawal from Haiti.—Early in April the United States discussed the financial situation with Haiti and indicated that we were ready to discontinue the existing regime just as soon as adequate arrangements could be made to protect our interests. As evidence of her serious intentions, the United States, through American Minister Dana G. Munro, signed a Treaty of Friendship Sept. 3, with Foreign Minister Blanchet, providing for withdrawal. It was proposed that the United States should relinquish part of its control over Haitian officers in 1934, two years earlier than the treaty provided. The Garde d'Haiti was to be completely officered by Haitians

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not later than Dec. 31, 1934, and American marines were to begin withdrawal at that time. The American Receiver General of Customs was to be replaced by a Fiscal Representative and Deputy Fiscal Representative, who were to be appointed by Haiti upon nomination by the United States. These officials were "to supervise and administer customs, make provision for the bonded debt service and assist the government to maintain a balanced budget." Later in the same month the Haitian Assembly rejected the treaty on the grounds that, although it pretended to liquidate the treaty of 1915, it really reenforced it. It would fail to free the island of marines and it continued financial control till 1952. In an exchange of notes made public Oct. 10, the U. S. Department of State again announced the intention of leaving Haiti, but gave warning that the persistent refusal to accept the treaty would require the marines to stay till 1936. Under any circumstances the United States would continue its program of Haitianization of the Garde in accordance with the treaty of 1915 and the recommendations of the Forbes Commission.

Relations with Costa Rica.—Where no presidential candidate received the necessary majority in the elections of Feb. 14, Manuel Castro Quesada attempted a *coup d'état*. American Minister Eberhard succeeded in bringing the revolution to an end by a parley within the American legation with the diplomatic corps as observers. Señor Ricardo Jimenez Oreamuno, who received the plurality of votes in the election, was inaugurated May 8. It was reported in November that Foreign Minister Pacheco was beginning a trip by airplane to all the Central American republics with a view to obtain denunciation, abrogation, or modification of the 1923 treaty, which prohibits recognition of any government seizing power by revolutionary means.

Revolution in Salvador.—The reason for denouncing the treaty of 1923 seems to have been based upon a desire to recognize General Martínez

as president in December, 1931, by a military junta. An uprising in January was so serious that, at the request of the Italian consul general, the United States sent three war vessels to be ready for emergencies. No marines were landed, however, and on Feb. 5 the National Congress declared General Martínez' assumption of the presidency constitutional. The United States refused to accord recognition.

RELATIONS WITH SOUTH AMERICA

Bolivia-Paraguay Dispute.—Internal conditions remained disturbed in many of the South American States, but the only problem which concerned the United States, and that only indirectly, was the undeclared war in the Gran Chaco region between Bolivia and Paraguay. The year opened with the Commission of Inquiry under the auspices of the five neutral powers,—Colombia, Cuba, Mexico, Uruguay, and the United States, continuing their negotiations for a non-aggression pact. On July 8 the Paraguayan representation withdrew from Washington because of reported Bolivian aggression in the Chaco. On Aug. 2 the five neutrals appealed to Bolivia to suspend hostilities and the next day a joint note signed by 19 American republics was sent to both governments. It stated that "the American nations further declare that they will not recognize any territorial arrangement of this controversy which has not been obtained by peaceful means nor the validity of territorial acquisitions which may be obtained through occupation or conquest by force of arms." A truce reached on Aug. 10 was short lived, and the commission of neutrals in Washington on Aug. 29 proposed in identic notes a 60-day truce beginning Sept. 1 in the Chaco. This failed, and Paraguay launched a major attack. The commission of neutrals on Sept. 14 and again on Oct. 3 and Oct. 13, proposed that Bolivia and Paraguay withdraw their troops sufficiently to prevent further clashes and that a military commission be sent to supervise the withdrawal. Although favorable replies

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were received, the hostilities continued. On Nov. 25 the League of Nations sent cables to Bolivia and Paraguay and to the commission of neutrals in Washington, urging the immediate constitution of the military commission and calling upon both sides to accept it without delay. Early in December it appeared as though the proposal might be accepted.

AMERICAN RELATIONS IN THE ORIENT AND NEAR EAST

BY ALBERT HOWE LYBYER

PROFESSOR, UNIVERSITY OF ILLINOIS

GENERAL

International and internal conditions in the Far East were in a state of the most serious trouble and confusion at the beginning of 1932, and they remained a principal concern of the statesmen of the world throughout the year. After Sept. 18, 1931, Japan had proceeded to expand her railway and lease-hold rights in Manchuria, the three northeastern provinces of China, into a complete occupation and control. At first the aggressive leaders proceeded more or less against the will of the liberal civil government, but in December with the appointment of Premier Inukai, the policy of the government became militaristic and imperialistic. Economic conditions in Japan were bad and growing worse. China was badly off both politically and economically. Serious civil war had been averted by the reaction against the Japanese seizure of Manchuria. A government in which the Nanking and Canton elements cooperated had been set up with much difficulty on Dec. 28, 1931. A large portion of central China was in the hands of communists. Other portions were controlled by war lords of doubtful loyalty to the central government. Flood and famine added to the troubles of a considerable fraction of the population.

THE LYTTON COMMISSION AND THE HOOVER DOCTRINE

The Council of the League of Nations had on Dec. 10 decided to appoint a commission of five members "to study on the spot and to report to the Council on any circumstance which, affecting international rela-

tions, threatens to disturb peace between China and Japan." Lord Lytton became chairman of this commission, and the other members were Major General Frank R. McCoy, Henri Claudel, Dr. Albert Schnee, and Count Luigi Aldovandi-Marescotti. The position of the United States Government (referred to sometimes as the Hoover Doctrine), which was maintained steadfastly throughout the year, was expressed by Secretary of State Stimson in a note to the Japanese and Chinese governments sent on Jan. 7: "the American Government cannot admit the legality of any situation . . . treaty or agreement . . . which may impair the treaty rights of the United States or its citizens in China, including those which relate to the sovereignty, the independence or the territorial and administrative integrity of the Republic of China, or to the international policy relative to China, commonly known as the open-door policy; and . . . it does not intend to recognize any situation, treaty or agreement which may be brought about by means contrary to the covenants and obligations of the Pact of Paris of Aug. 27, 1928."

THE SHANGHAI INCIDENT

Chinese groups had begun in July of 1931 to employ against Japan the weapon of boycott. This movement was vastly intensified after Sept. 18. Not only did Japanese commercial interests suffer severely, but in some cases Japanese citizens were injured. Having completed in December a preliminary occupation of Manchuria, and having obtained control of the civil government of Japan, the im-

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perialistic group decided to take strong measures toward putting an end to the Chinese boycott. Shanghai was chosen as the scene of activity, which was assigned at first to the Japanese Navy. Demands presented on Jan. 21 culminated in an ultimatum a few days later, though the Chinese authorities yielded completely, the Japanese Admiral Shio-sawa at midnight of Jan. 28 sent 2,000 marines through the International Settlement into the suburb of Chapei. The Chinese offered surprisingly vigorous resistance, chiefly through the "19th route army" from Canton. The fierce fighting lasted about six weeks, until the Chinese had been dislodged and driven back 12 or more miles. The Japanese used modern weapons of destruction freely, in particular bombing and ruining the plant of the Chinese Commercial Press. Estimates of the total damage done ran as high as \$600,000,000 gold. Each side had perhaps 100,000 troops engaged, the Japanese Army having been called to the assistance of the Navy. Japanese casualties were reported as about 3,000 and the Chinese seven times as many. But neither side declared war or proclaimed a state of war.

Because of the extensive and varied international interests involved, and because both combatants were members of the League of Nations, the situation at Shanghai attracted worldwide attention. The Chinese appealed promptly to the Council of the League and then to the Assembly. The Japanese denied aggression or political or territorial ambition, and interposed technical objections wherever possible. The League Assembly met on March 3, and promptly by resolution requested China and Japan to cease hostilities. On March 11 a special committee of mediation and conciliation, consisting of 19 members, was created to attempt the restoration of peace. The United States government associated itself with these efforts. Overtures for an armistice began on March 10, and continued until the signature of conditions on May 4. Meantime the Japanese had been gradually withdrawing their troops,

transferring many of them to Manchuria.

ORGANISATION OF THE STATE OF MANCHUKUO

Completing an intention which apparently was in mind from Sept. 18, 1931, Japanese agents had been setting up in Manchuria a new government which they represented as the spontaneous action of the Chinese inhabitants. A constitution was published March 4. At the head was Pu Yi, formerly Emperor of China with the title of dictator. A cabinet composed of a prime minister and seven ministers, a senate, and a legislative council were provided for. The capital was fixed at Changchun, the name being changed to Hsinching. Political connection with China was declared severed, and general recognition as an independent state was sought. The Chinese customs administration within the boundaries was taken over, with a promise to assume a proper share (about 15 per cent) of the Chinese foreign debts which were secured upon the customs. Japanese government agencies in Manchuria were progressively consolidated under a single military officer, at first General Honjo, and after Aug. 6 General Muto. It was reported that the real government of Manchukuo was in the hands of this official assisted by seven Japanese as a board of general affairs, and by Japanese advisers set alongside each Manchukuo official of importance. The Japanese government recognized the new state on Sept. 15, and until the end of the year stood alone in so doing.

REPORT OF THE LYTTON COMMISSION

The Lytton Commission reached Shanghai in March and Manchuria in April. A second visit to Tokyo in August failed to stave off Japanese recognition of Manchukuo. The Commission's report was forwarded to Geneva by air mail Sept. 4, and published Oct. 2. It attempted to ascertain and interpret leading facts, and to suggest practicable solutions of difficulties. Manchuria is an integral part of China, Japan has important

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vested interests there, and Russian relations cannot be overlooked. The League Covenant, the Nine-Power Treaty, and the Pact of Paris must be observed. Chinese internal troubles should be settled by international co-operation. Neither the *status quo ante* nor the maintenance of Manchukuo is tolerable for Manchuria. China should agree to special administration there with foreign advisors, and should recognize Japan's interests, agreeing on treaties of arbitration, non-aggression, and commercial relations. The open-door must be maintained. China was inclined to accept the report, though preferring the *status quo ante*. Japan rejected it as ill-founded and unreal, denied that China is an organized state and urged the continuance of Manchukuo under Japanese guidance. The Council of the League discussed the report during the week of Nov. 21 and referred it to the Assembly Committee of Nineteen. This Committee, inclined to sustain the report, adjourned until Jan. 16, 1933, hoping to obtain Japan's agreement to its resolutions.

INTERNAL CONDITIONS IN JAPAN

Popular unrest in Japan was shown by completed and attempted assassinations, even threatening the Emperor. New elections in February changed the majority in the Diet from the conciliatory Minsaito party to the aggressive Seiyukai. Extraordinary sessions were held under pressure in order to grant in minimum time credits for military operations. Premier Inukai was assassinated on May 15, and Admiral Baron Saito succeeded him. The condition of the farming and laboring classes grew steadily worse. \$60,000,000 was voted for emergency relief in September. The yen fell to 20 cents in November. The budget for 1933-34 was fixed at 2,200,000,000 yen, a crushing sum, about 170 per cent of expected revenue. Capital tended to flee, by stimulating exports and leaving the proceeds abroad. Toward the end of the year the effect of the decline of the yen showed itself in inflationary improvement of prices and trade. Resistance continued in Manchuria, and the in-

vasion of Jehol was persistently predicted. The country was near diplomatic isolation, though groups in England and France showed sympathy.

INTERNAL CONDITIONS IN CHINA

Despite the prevalence of communism among perhaps 75,000,000 Chinese, the disobedience of some war lords, and fighting in the west, the principal leaders and groups held together throughout the year on the Kuomintang basis. The capital was transferred from Nanking to Loyang during the Japanese threat of the first six months. Various conferences met with some results, on national emergency in April, anti-civil-war in August, and peace in October, with a national Kuomintang Congress in December looking toward expediting the establishment of parliamentary government. Economically some improvement took place, in recovery from famine and flood conditions, substitutes for trade with Japan of exchanges with other countries, and rallies in support of the government, which lived from hand to mouth but balanced its budget. Japanese aggressions, both military and verbal, and the prospect of foreign interference to effect reorganization appeared at last to be inciting progress toward internal peace and order. Relations with Soviet Russia were renewed in December and ambassadors were mutually appointed. A new phase of trouble with Japan began on Jan. 1, 1933, when soldiers of that country and of Manchukuo took possession with fierce fighting of Shanhaikwan, the Chinese guard city at the sea end of the Great Wall. Fears arose lest the Japanese soon occupy Peiping and Tientsin.

TURKEY

During 1932 Mustapha Kemal Pasha continued to be President of the Republic, Ismet Pasha, Prime Minister, and Tefvik Rushtu Bey, Foreign Minister. These men with a group of associates proceeded as in previous years to improve foreign relations, build up the country's domestic and foreign trade, and support

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various movements toward deepening Turkish nationalism. Perhaps the most important event of the year was Turkey's admission to the League of Nations on July 6. In April and May Ismet and Tefvik Rushtu visited Russia and Italy, renewing treaties of friendship and commerce for another five year period. An agreement was made by which Russia advanced goods to the value of \$8,000,000, chiefly for the equipment of Turkish factories, and Turkey agreed to pay by providing raw materials for 20 years. Italy also agreed to provide a credit of \$15,420,000, one-third in machinery and industrial material, one-third in building four torpedo boats and two submarines, and one-third in cash. During the year Persia ceded the Little Ararat mountain to Turkey in exchange for territory further south, and a treaty of friendship was signed. Turkey entered into further conference with the Balkan states, looking toward mutual advantage.

The government struggled with balancing the budget both by increasing taxation and reducing expenditures. The total figure was set at about \$80,000,000, which involved a reduction of 27% in two years. The income tax was raised to 43% on incomes over \$300 per month. In the middle of the year a law was passed reserving many trades and professions for Turkish citizens, from Jan. 1, 1933. Foreign trade was closely regulated, import quotas being imposed at different times, the principal motive being to maintain a favorable balance of trade. A number of American products were unfavorably affected. The railway from Samsun to Sivas, 250 miles long, was completed, and other railway connections were in progress, mostly built out of current income. Roads were improved. The establishment of air service between principal cities was begun under contract with an American company. An American was appointed to reorganize the customs.

The Koran was read for the first time in the Turkish language at Constantinople on Jan. 2, and was broadcast from St. Sofia a few days later.

An organization called "The People's Home" was inaugurated for the study of Turkish language, literature, folklore and history. A Turkish linguistic congress under the old name Kuriltai met in September to study improvements of the Turkish language, particularly by the removal of Persian and Arabic words. Dr. Paul Monroe was appointed in May president of Robert College and Constantinople College for Women, and took up his duties in September.

EGYPT

Egypt continued throughout the year under King Fuad and Premier Sidky Pasha, with a parliament elected in 1931 by a minority party. Relations with England were maintained on a provisional basis, without taking up again the negotiation of a treaty. In February the tenth anniversary of the British Declaration Concerning Egypt, which declared the country independent, was celebrated. A general arbitration treaty with the United States was ratified on Aug. 24.

Necessary adjustments were made because of the continuing depression. Cotton prices remained low and the tourist traffic was greatly reduced. The government kept its holdings of cotton off the market during most of the year. The government had ordered the reduction of cotton planting by one-third, and actually only about one-half the recent average amount was planted. Wheat acreage was increased, leading to superabundance of that grain, which was sought to be protected by legislation.

The parliament sat until July 7, dealing mainly with economic questions, and assembled again on Dec. 15. In October the King took special pains to affirm his full support of Premier Sidky's government. The government made arrangements to help farmers by assuming unpaid installments on mortgage loans for two years and by prolonging mortgages and reducing the rate of interest. The money of the country had followed the British pound away from the gold standard and this appeared to help trade considerably.

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SYRIA

Syria continued to be administered as a mandate held by France from the League of Nations, with M. Henri Ponsot as High Commissioner. The country remained divided into five areas, of which the Syrian State and the Lebanon were the most important. There was talk throughout the year of replacing as regards the Syrian State the mandatory regime by a treaty of alliance with France. The constitution of the Syrian State came into effect with the parliamentary election of Jan. 5. Subhi Bey Barakat was president until June 11, when the Turk Ahmed Ali Bey el-Abed was elected. The constitution of the Lebanon had been suspended in May, and M. Debbas was made practical dictator. In both these areas the expenses of government were cut sharply. Economic conditions continued throughout the year with no great change. Foreign trade was reduced and vacation visitors were fewer than usual. The country remained in general remarkably quiet.

PALESTINE

Palestine continued during 1932, together with Transjordan, under the mandate of Great Britain, with Sir Arthur Wauchope as High Commissioner. Proposals that the country should be placed directly under the League, or that it should become a seventh British dominion were made but not considered seriously. The government continued to labor with the problem of reconciliation between the Arabs and Jews. These groups showed throughout the year less hostility to each other than previously, and developed a tendency to divisions within their own ranks. The High Commissioner contemplated a new municipal law and an ultimate legislative assembly. There was renewed talk of creating two autonomous regions, one Arab and one Jewish, with a single state constitution and assembly. Arabs were charged with "squatting" on lands bought by Jews from Arab landlords. The census taken in 1931 showed a population of 759,952 Moslems, 175,006 Jews, and 90,607 Christians. The total of 1,035,154 re-

vealed a 30% increase in nine years. In this time the number of Jews had doubled. Immigration was restricted during the first two-thirds of the year. The Jewish University held its first commencement in January and contemplates expansion. The Arabs plan the establishment of a Moslem university in Jerusalem. Palestine suffered less than most countries from the depression. Distinct progress was being made in agriculture, particularly in fruit growing. Many of the Arab peasants are very poor. The port works at Haifa were brought far toward completion. The first unit of the hydro-electric project in the River Jordan south of the Lake of Tiberias was brought into operation. Progress was made in producing minerals from the Dead Sea.

ARABIA

King Ibn Saud continued to rule the central portion of the peninsula. On Sept. 18 he issued a decree in which he changed the name of his dominions from "the Kingdom of the Hejaz and Nejd and their dependencies" to the "Saudian Arabian Kingdom." While continuing the existing legal and political organization he laid upon his Council of Ministers the task of drawing up speedily a new constitution, which would include the establishing of the order of succession, and the setting up of an improved form of government. Earlier in the year an invasion was attempted by exiled tribes from the direction of Akaba, but the invaders were trapped and defeated in battle on July 31. The desert region suffered from extraordinary drought. The number of pilgrims to Mecca was greatly reduced for the year. A Dutch financial adviser was employed to assist the government. The region of Yemen under the Imam Yahya was said to be very slightly injured by the world-wide depression. This country improved its foreign relations, particularly with Italy, and remained quiet.

IRAQ

After preparations continuing through several years, Iraq was admitted to the League of Nations on

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Oct. 3, thus being the first of the mandated countries to be advanced to a position of independence. The officials of the League insisted upon certain agreements looking to the protection of foreign persons and properties. The treaty with England also included certain restrictions upon the absolute freedom of the country, related especially to the problem of defence, and motivated by the increasing importance of Iraq in the air service of the Old World. Iraq signed the Briand-Kellogg Pact for the renunciation of war, and established diplomatic relations with various countries, including the United States. Economic conditions were comparatively good. A new currency based upon the pound sterling was introduced in April. It was believed that abandonment of the gold standard helped the export trade appreciably. A beginning was made of the pipeline which is to carry oil from the neighborhood of Mosul to Haifa and Tripoli. A railway connection with Palestine was also contemplated.

PERSIA

Persia remained under the rule of Riza Shah Pehlevi, with its parliament and ministry functioning regularly. Good relations were confirmed with Turkey by the signing of treaties (see under Turkey above). The outstanding international event of the year was the difficulty with England over the concession of the Anglo-Persian Oil Company. Mr. D'Arcy obtained in 1901 the right to prospect for and produce oil in the greater part of Persia. In 1909 the Anglo-Persian Oil Company, Ltd., was organized to take over the concession

and begin extensive operations. The Persian government received as royalty 16% of the net profits. This amounted in sum total before the end of 1932 to about \$55,000,000. When in 1931 the revenues began to fall sharply, the Persians protested against the small percentage of the royalty, and also against the fact that the British government obtained more from the Company by way of income tax than the Persian government in royalty. On November 27 the Persian government informed the Company that its concession was cancelled. The British government, which had acquired during the Great War a controlling interest in the company, protested promptly, with threats of forcible action in case of damage done. They proposed to refer the matter to the World Court. The Persians expressed their intention to appeal to the Council of the League of Nations. The British accepted this idea and the opening argument was set for January, 1933.

Previously the agreement by which British planes in Baghdad and India flew over Persian territory had lapsed. Negotiations were carried on with American and other companies regarding motor and air services. After cancelling the contract of the American company which was building the south end of the Trans-Persian railway, the Persian government had that work continued, and 150 miles were completed, together with about half as much at the north end. Southern Persia suffered from excessive drought. The government deferred changing its currency to the gold standard and balanced its budget by a sharp reduction in expenditures.

THE UNITED STATES AND THE WAR DEBTS

BY JAMES THAYER GEROULD

LIBRARIAN, PRINCETON UNIVERSITY

DECLARATION OF AMERICAN POLICY AND PROCEDURE

The resolution confirming the so-called Hoover moratorium, passed by

Congress late in December, 1931, carried an amendment to the effect that "it is hereby expressly declared to be against the policy of Congress that

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any of the indebtedness of foreign countries to the United States should be in any manner cancelled or reduced, and nothing in this joint resolution shall be construed as indicating a contrary policy, or as implying that favorable consideration will be given at any time to a change in the policy hereby declared." This clear and emphatic statement dictated, in a considerable degree, the policy of the Administration during 1932.

It was necessary for it, however, to take into some account political and financial realities; and, early in January, a memorandum covering the subject was handed to Ambassador Claudel of France. Its text, released in Paris on Jan. 20, covered five points: 1. There is no connection between war debts and reparations; 2. The European powers must take the initiative on reparations; 3. A demand for a new debts moratorium could not obtain approval in Congress, and the Senate opposes a cancellation or reduction of the debts; 4. The United States Government would look with displeasure on the formation of a united front by the debtor nations; 5. The existing debt arrangements, having been concluded separately, can eventually be revised only by separate accords.

LAUSANNE CONFERENCE AND DEBT NEGOTIATIONS

Although legally the doctrine that war debts and reparations are unrelated is doubtless correct, their political connection could not be escaped. The communiqué issued jointly by President Hoover and M. Laval, after the visit of the French premier to Washington, was interpreted abroad as meaning that, if the European powers should come to an agreement regarding reparations, an arrangement might later be made for a reconsideration of the debt settlements. Acting on this understanding, and forced by their own necessities, the Lausanne Conference was convened. In this the United States took no part. On July 9, the delegates at that conference signed a treaty which provided that the annuities under the Young plan would be annulled in

favor of a contingent payment of approximately \$714,000,000 at a later date. A few days following the publication of the text of the treaty, the existence of the so-called "gentleman's agreement" was announced, by virtue of which it was provided that the treaty would be ratified by the creditors of Germany only after they had reached a satisfactory agreement with the United States regarding their own debts. Since it was clear that to raise so controversial a question during a presidential campaign might have unfortunate results, the debtor powers delayed the initiation of any negotiations until after the election.

On Nov. 11, notes were received both from France and Great Britain asking that the debt settlements should be reopened, and that, during the period of the negotiations, the moratorium should be continued. President Hoover immediately requested President-elect Roosevelt to confer with him regarding the course to be pursued. While no public statement was made covering the results of their conversations, it became immediately evident that there was a vital difference of opinion between the two men as to the proper method of dealing with the problem. The President wished to reconstitute, in some manner, the Debt Funding Commission, while Mr. Roosevelt believed that more satisfactory results might be attained through negotiations conducted in the ordinary diplomatic channels. He held, too, that the power of the President to negotiate with foreign powers cannot be limited by Congress.

STATEMENT OF AMERICAN POSITION

Replies to the French and British notes were dispatched on Nov. 23. In both it was pointed out that no authority was lodged in the President either to grant a further moratorium, or to agree to a readjustment of the debts. The government still maintained the opinion that the debts were not related to reparations, and that the Lausanne agreement in no way affected the obligation of the debtor nations to make the payments as pro-

vided for in the debt settlements. The President was willing to recommend to Congress the reference of the debts to a commissioner charged with the duty of conducting negotiations with the debtor governments severally and the prompt payment of the annuities due of Dec. 15 would be of assistance in promoting these arrangements. A similar reply was made to the notes requesting delay and reconsideration which were received from Belgium, Czechoslovakia and Poland. Greece had already defaulted on a small payment due on Nov. 10.

THE BRITISH AND FRENCH REPLIES

Acting on the statement in the note of Nov. 23 that "no facts have been placed in our possession which could be presented to Congress for favorable consideration," the second British note, sent on Dec. 1, went into some detail in an argument that the maintenance of the debt payments on the present scale would still further depress world prices and would make recovery from the crisis more difficult. The amount of the payments is small in comparison with the loss of wealth and with the human misery that its payment would entail. If a settlement with the United States could not be made, the Lausanne agreement would be imperiled. The connection between reparations and debts was, in fact, admitted by their association in the Hoover moratorium.

The second French note, received on the day following, stressed the fact that the Hoover-Laval communiqué of October, 1931 gave ground for the belief that a readjustment of the debts would follow a reparations settlement, and that the payment of the sums legally due would create "further chaos and poverty throughout the world."

RESTATEMENT OF POSITION BY SECRETARY STIMSON

Secretary Stimson, in replying on Dec. 7 to the British note, admitted that falling prices had increased the burden of the debts, and that the existence of these obligations has "a very definite relation to the problem

of recovery." For this reason, the President is willing, in cooperation with the British government, to survey the entire situation with the purpose of finding means that would aid in bringing about world recovery. Any relation of the debts to the Lausanne settlements is again denied, and the necessity for the payments of Dec. 15 is urged. The reply to the French note, made on Dec. 9, went less into detail, but it insisted that payments made when due would facilitate a subsequent study, not only of the debts, but of the related questions of currencies, exchanges, the revival of trade, the recovery of prices, the expansion of American markets and "progress toward world recovery through disarmament." Cancellation cannot be considered.

GREAT BRITAIN DECIDES TO PAY

The contents and tone of these notes strengthened the demand for default both in Great Britain and in France, but in neither country was the government willing to go to that extreme. The British reply, dated Dec. 11, stated that a remittance would be made on the date due, with the understanding that it is "a capital payment of which account should be taken in any subsequent settlement." Replying on the same day, Mr. Stimson said that he could not accept the payment on those terms, and that he must assume that the British statement expressed a desire rather than a decision. This position was, in effect assented to by the British government and the payment was made on Dec. 15.

FRANCE DEFAULTS

In the meantime, M. Herriot was struggling to secure, from the Chamber of Deputies, authority to make the payment, with the understanding that it should be credited on any future settlement. The debate continued through three days, and after an all-night session he was defeated, on the morning of Dec. 14, by an adverse majority of 402 to 187. The resolution passed stated that because of the Hoover moratorium and the Lausanne settlement, the earlier arrangements had lost their force. Pend-

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ing the agreement of the United States to enter a world conference at which all international obligations could be considered, the payment of the annuity should be "deferred." The Herriot cabinet promptly resigned.

THE DECEMBER PAYMENTS

On Dec. 15, payments totalling \$98,685,910.63 were made by Czechoslovakia, Finland, Great Britain, Italy, Latvia and Lithuania. All but about \$3,000,000 was paid by the British government by earmarking gold in the vaults of the Bank of England. The governments technically in default on the same date were Belgium, Estonia, France, Hungary and Poland, the amount due from them being \$24,996,511.85.

POLITICAL ASPECTS

It was realized in Washington that a situation had been created that would require very careful handling. The American public had been taught to believe that these debts were not essentially different from ordinary commercial obligations, and they realized only that, if the foreign na-

tions did not pay them, the burden would fall on the American taxpayer. The arguments of the economists that debts of this character could only be paid in goods, and that the transformation of the country, following the war, from a debtor to a creditor nation, compelled a readjustment of our financial policy, fell on deaf ears.

Since any adjustments that were to be made must necessarily be completed by the new administration, President Hoover, in an exchange of telegrams with Mr. Roosevelt between Dec. 17 and 23, endeavored to secure the cooperation of the latter in the establishment of a commission, on which there should be members of Congress, which would undertake negotiations regarding the debts, and which would articulate with the Economic and the Disarmament Conferences. As this procedure was directly contrary to his expressed views as to the proper method of dealing with the debt problem, Mr. Roosevelt felt compelled to decline to accept the responsibility. At the end of the year, it seemed likely that nothing further could be done until after March 4.

THE ECONOMIC CRISIS IN THE DANUBIAN COUNTRIES

BY VERA MICHELES DEAN

FOREIGN POLICY ASSOCIATION

THE TREATY OF SAINT-GERMAIN

Creation of Succession States.—At Saint-Germain, in the neighborhood of Paris, there is a charming pavilion which Henry IV is reputed to have built and where Louis XIV was born. This pavilion—such are history's little ironies—is now a fashionable restaurant, but one quiet room enjoying a magnificent view of Paris, remains dedicated to memories of the past. Here on a September day in 1919 the first chancellor of the new Austrian Republic signed the treaty of Saint-Germain which dismembered the Hapsburg empire and parceled out its territory and population among five Succession States. This treaty rati-

fied a disintegration hastened, rather than precipitated, by the World War, and was designed to satisfy the aspirations of nationalities which had rebelled against the imperial yoke.

Political and Economic Consequences.—Political independence, however, proved a vain gift. Not only did it fail to check national animosities, but encouraged the growth of acute economic nationalism. Deprived of the vast free trade market which they had enjoyed in the former empire, the Succession States attempted to achieve independence by erecting high tariffs and artificially stimulating the development of industries for which their resources

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were ill-adapted. These efforts under favorable circumstances might have been partially successful, but they were cut short by the world crisis, which has throttled the foreign trade and disorganized the finances of the Danubian countries. Today the pendulum seems to have swung back to that fateful day in Saint-Germain. The old adage that, if Austria-Hungary did not exist, it would have to be invented, has been revived in European chancelleries, and the formation of a Danubian federation has been urged by France as a solution of the economic crisis in Central and Eastern Europe.

FEATURES OF THE ECONOMIC CRISIS

Foreign Trade Difficulties.—The main features of this crisis are already sadly familiar. The industrial countries of the Danubian region,—Austria and Czechoslovakia—have found it increasingly difficult to export manufactured goods to their agrarian neighbors whose purchasing capacity has been drastically curtailed by the sharp decline in agricultural prices. The agrarian countries,—Hungary, Yugoslavia and Rumania—have meanwhile discovered that they cannot sell their foodstuffs even at ruinous prices, because the peasants of Austria and Czechoslovakia, who wield considerable political power, demand agrarian protectionism. The League of Nations, to which several of the Danubian states have appealed for advice and financial assistance, has urged them to cut imports to the bone and increase exports, in order that they may secure the foreign exchange necessary for service of the heavy indebtedness which they contracted during the post-war period.

Import Prohibitions and Currency Restrictions.—This advice, which might have proved helpful when followed by one country alone, has been disastrous when applied by all. With a view to reducing imports and conserving their already depleted resources of foreign exchange, the Danubian countries have, during the past year, adopted import prohibi-

tions and foreign currency restrictions which have brought trade practically to a standstill. The Danubian market is consequently glutted with exports which find no purchaser, and two states,—Austria and Hungary—failing to accumulate sufficient foreign exchange, have been forced to establish transfer moratoriums on foreign debts. A region rich in foodstuffs and raw materials has thus for the most part been plunged into acute economic distress. The impoverished Viennese must pay exorbitant prices for domestic goods of inferior quality, while the Hungarian farmer, whose produce is barred from Austria by import prohibitions, finds it cheaper to feed his world-famous fruits and vegetables to the pigs than to transport them to the local market.

ATTEMPTED REMEDIES AND SOLUTIONS

Austro-German Union Blocked.—

Every solution hitherto proposed for the Danubian economic crisis has been blocked by political considerations. When Austria, despairing of international assistance, attempted to improve its situation by signing the Vienna protocol of March 19, 1931, which provided for a customs union with Germany, France and the Little Entente (Czechoslovakia, Rumania and Yugoslavia) vigorously protested on the ground that the protocol constituted a violation of the *status quo* and a step toward *Anschluss*. The Permanent Court of International Justice, requested by the League Council to give an advisory opinion on this question, declared on Sept. 5, 1931, by eight votes to seven that, while the Vienna protocol was not perhaps inconsistent with the treaty of Saint-Germain, it was incompatible with the Geneva protocol of 1922 which provided for the financial reconstruction of Austria under the auspices of the League of Nations.

Proposed Danubian Federation.—

Following an investigation of Austria's economic situation in September, 1931, the League Financial Committee urged that credits totaling some \$35,000,000 be extended for the reorganization of Austrian finances.

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It was generally recognized that France, alone of the European countries, was in a position to grant these credits, and speculation was rife regarding the political terms which the French government might exact in return for financial assistance. France, however, contemplated a different solution of Austria's problems. In a note of March 2, 1932, addressed to Great Britain, Germany and Italy, the Tardieu government suggested that Austria, Hungary, Czechoslovakia, Rumania and Yugoslavia should form a Danubian union based on a system of preferential agreements and import quotas. The French project caused profound apprehension both in Berlin and Vienna where it was viewed as a political scheme designed to detach Austria from Germany and subject it to French financial control, and aroused little enthusiasm on the part of the Little Entente. At the four-power conference summoned by Great Britain in London on April 5 to consider the plight of the Danubian countries, Germany insisted that it should be admitted to the proposed union,—a position supported by Italy and opposed, behind the scenes, by Czechoslovakia, which feared German trade competition. The conflict of interests proved insurmountable, and the London conference closed on April 8 without reaching any solution.

Lausanne Protocol.—When the League Council met on May 19 the Tardieu government, recently defeated at the polls by the Left parties, appeared more willing to consider some form of aid for Austria, but continued to argue that such aid should be linked to a general scheme of Danubian rehabilitation. Failing to obtain either financial assistance or new outlets for its exports, Austria declared a transfer moratorium on July 15. On the same day the League Council approved the Lausanne protocol by which France, Great Britain, Italy, Czechoslovakia, Holland, Belgium and Switzerland agreed to guarantee a twenty-year loan of \$42,000,000 for Austria. The Lausanne protocol states that the new loan is granted on the basis of the Geneva protocol

of 1922, in which Austria undertook to abstain from any negotiations or any economic engagement calculated to compromise its independence, thus prolonging until 1953 an obligation which, according to the Geneva instrument, would have terminated in 1943. When the League Council approved the Lausanne protocol, the German delegate abstained from voting, ostensibly on the ground that his government had not signed the Geneva protocol, but added that, in Germany's opinion, political conditions should not be attached to schemes for financial assistance.

Stresa Conference.—Further hope of aid for the Danubian states was held out by a special committee appointed by the Lausanne Conference on July 9, which met at Stresa on Sept. 5-20 to consider measures which might overcome transfer difficulties in Central and Eastern Europe, revive trade in that region, and alleviate the crisis suffered by the agrarian countries. The Stresa Conference, however, was concerned primarily with agrarian problems, and devoted most of its time to consideration of preferences for agricultural products and the creation of a fund for the "revalorization" of cereals, to which most of the cereal-importing European countries proved reluctant to contribute. In closing, the conference declared that the problem of Austria, "whose exports are not mainly agricultural and who has to cope with particularly serious marketing difficulties" would form the subject of subsequent discussions.

THE OUTLOOK

Under the circumstances, the future of the Danubian countries does not lend itself to happy augury. Their dependence on foreign trade makes them peculiarly vulnerable to the world crisis as long as they remain shackled by high tariffs and exchange restrictions. Nor can foreign loans, which merely postpone the inevitable reckoning and further strain already overburdened budgets, offer a sound solution of the problem. Revision of the peace treaties is not only impracticable in a period of sharpened na-

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tionalism, but perhaps even undesirable now that the industry and agriculture of the Succession States have undergone a fundamental change. Economic self-sufficiency, while not inconceivable as a last resort for some of the Danubian countries, could be achieved only by reducing their standard of living below the

subsistence level. The only hope for each of the "heirs of the Hapsburg Empire" is that their principal customers will be driven by sheer necessity to readjust their tariffs and abandon exchange restrictions, and that trade may once more be resumed in the Danubian basin.

INTERNATIONAL CONFERENCES

BY WILLIAM T. STONE

WASHINGTON REPRESENTATIVE, FOREIGN POLICY ASSOCIATION

INTERNATIONAL GATHERINGS CUT BY THE ECONOMIC CRISIS

In contrast to 1931, when the United States participated in a larger number of international conferences than ever before in its history, the year 1932 witnessed a sharp falling off in the number of international gatherings. Whereas the American Government was officially represented at more than 35 important conferences or congresses during 1931, it sent delegates to only 25 such gatherings in the year under review. This numerical decrease was due in large measure to the effects of the world economic depression. On the one hand the economic crisis made it difficult or financially impossible for many international associations in the fields of public health and the social and applied sciences to hold their customary conferences. On the other hand, although the economic crisis emphasized the need for constructive international action, the lowering of tariff barriers and trade restrictions, and the stabilization of international exchange, the policies pursued by governments actually tended to increase economic nationalism and delay economic recovery. Thus the World Economic and Monetary Conference, originally proposed for the year 1932, was postponed to an indefinite future date following the failure to reach a final settlement of inter-governmental debts, described by the Basle Committee of Experts as one of the chief obstacles to restoration of confidence.

DISARMAMENT CONFERENCE

U. S. Delegation.—Although expressions of anti-foreign sentiment were frequently voiced in Congress during the year 1932, particularly in connection with the debate on the Hoover moratorium, the United States government officially reaffirmed its belief in the principles of international cooperation. As evidence of its support of the principles of cooperation the United States appointed a full delegation to the Disarmament Conference which convened in Geneva Feb. 2. The delegation was headed by Secretary of State Henry L. Stimson who visited Geneva in April, 1932. During the first stage of the conference Hugh S. Gibson, Ambassador to Belgium, was acting head of the delegation. The other delegates were Norman H. Davis, a former under-Secretary of State; Senator Claude Swanson of Virginia, ranking Democratic member of the Senate Foreign Relations Committee; Hugh Wilson, Minister to Switzerland, and Dr. Mary E. Woolley, President of Mt. Holyoke College. Dr. Woolley was the first woman to represent the United States in an official capacity at a major international conference.

Record of the Conference.—Sixty countries were officially represented at the Disarmament Conference during the first stage of its work, which lasted from Feb. 2 to July 24, 1932. To those who had looked for an immediate and substantial reduction of armaments, the results achieved dur-

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ing this period were a disappointment. The Conference had revealed fundamental, political issues which defied any simple solution and had produced a host of technical obstacles requiring time as well as patience for their solution; it had not succeeded in completing a foundation for the general reduction and limitation of armaments. The record of the first six months was summed up in a resolution adopted by majority vote on July 23. This resolution reaffirmed the determination of the Conference "to achieve a first decisive step" toward disarmament by means of a general convention limiting land, naval and air armaments. It endorsed the principle of "qualitative disarmament," or the abolition of offensive weapons, such as tanks and heavy artillery especially adapted to aggression, and it sought to prohibit air attack against the civilian population. The application of these principles, however, was deferred to a later stage, and the possibility of reaching a unanimous agreement on abolition of aggressive weapons was not increased by the inability of technical commissions to define what constituted an aggressive weapon.

German Equality of Rights.—Germany and Soviet Russia refused to accept the resolution of July 23 on the ground that it was inadequate, and Germany, early in September, announced its intention to withdraw from the further work of the Conference until its claim to "equality of rights" had been accepted. The withdrawal of Germany precipitated an acute political crisis and confronted the Conference with the prospect of an immediate collapse. In December, 1932, due largely to the efforts of Norman Davis, a member of the American delegation, a meeting of the five great powers—Great Britain, France, Italy, Germany and the United States—was arranged at Geneva. Great Britain, France and Italy agreed that one of the principles that should guide the Conference should be to grant to Germany and the other disarmed powers equality of rights. As a result of this agreement Germany signified its willingness to

resume its place in the Disarmament Conference. Thus the Conference was prepared to renew its efforts in January, 1933, with Germany again participating in the work.

Hoover Arms Reduction Plan.—An important American contribution to the first stage of the Conference was made on June 22 when President Hoover announced a plan for reducing the armaments of the world by approximately one-third. While the plan was welcomed by many of the smaller powers and by Italy, it was not received with enthusiasm by Great Britain or France. Great Britain claimed that her own armaments had already been drastically reduced, while France insisted that provisions for security must form a part of any acceptable scheme for disarmament.

U. S. COOPERATION WITH THE LEAGUE OF NATIONS

Lytton Commission.—During 1932 the United States sought to continue its cooperation with the League of Nations in its effort to bring about a solution of the Manchurian controversy between Japan and China. The American government, however, did not appoint an official representative to sit at meetings of the League Council as it had in 1931. An American citizen, General Frank McCoy, was appointed a member of the International Commission of Inquiry appointed by the League to investigate the situation in the Far East and to submit recommendations to the Council.

Opium Conference.—The United States also continued its cooperation with other agencies of the League of Nations during 1932, sending a representative in an expert and advisory capacity to the Fifteenth Session of the Advisory Committee on Traffic in Opium at Geneva.

INTERNATIONAL ECONOMIC CONFERENCE

The American Government cooperated closely with other powers in preparations for the International Monetary and Economic Conference, although the Hoover administration declined to place the questions of

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inter-governmental debts or tariffs on the agenda. That the incoming Democratic administration would adopt a definite policy permitting a discussion of these political issues was indicated by Governor Roosevelt during the election campaign. American delegates were represented at a meeting of the Expert's Preparatory Committee for the Economic Conference meeting at Geneva between October 31 and November 12, 1932.

INTERNATIONAL CONFERENCES AT WHICH THE UNITED STATES WAS OFFICIALLY REPRESENTED

INTERNATIONAL CONFERENCES OF PRESS EXPERTS, Copenhagen, January 11-14.

GENERAL DISARMAMENT CONFERENCE, Geneva, February 2.

THIRD INTERNATIONAL CONGRESS OF SANITATION METHODS AND URBAN HYGIENE, Lyons, France, March 7-10.

THIRD INTERNATIONAL HYDROGRAPHIC CONFERENCE, Monaco, April 2-23.

FIFTEENTH SESSION LEAGUE OF NATIONS ADVISORY COMMITTEE ON TRAFFIC IN OPIUM, April 15-May 4.

FIFTH INTERNATIONAL CONGRESS OF LOCAL AUTHORITIES, London, May 23-25.

INTERNATIONAL WOOD CONFERENCE, Vienna, June 9-14.

SECOND SESSION OF LECTURES OF INTERNATIONAL BUREAU OF DOCUMENTATION ON MILITARY MEDICINE, Liege, Belgium, June 23-25.

TWELFTH SESSION, MEDICAL DAYS OF BRUSSELS, Brussels, June 25-28.

INTERNATIONAL CONGRESS ON ELECTRICITY, Paris, July 4-10.

FORTY-THIRD CONGRESS OF ROYAL SANITARY INSTITUTE, Brighton, England, July 9-16.

FOURTEENTH INTERNATIONAL CONGRESS OF SECONDARY EDUCATION, London, July 18-23.

FIFTH TRIENNIAL CONGRESS OF THE INTERNATIONAL SOCIETY FOR COMMERCIAL EDUCATION, London, July 25-29.

INTERNATIONAL CONGRESS OF PREHISTORIC AND PROTOHISTORIC SCIENCES, London, August 1-6.

TENTH INTERNATIONAL CONGRESS OF PSYCHOLOGY, Copenhagen, August 22-27.

INTERNATIONAL RADIO-TELEGRAPH CONFERENCE, Madrid, September 3-December 9.

INTERNATIONAL CONGRESS OF MATHEMATICIANS, Zurich, September 4-12.

EIGHTH CONFERENCE OF THE INTERNATIONAL UNION AGAINST TUBERCULOSIS, Amsterdam, September 6-9.

INTERNATIONAL CACAO CONFERENCE, Brussels, September 12-14.

INTERNATIONAL CONGRESS ON BILIARY LITHIASIS, Vichy, France, September 19-22.

SECOND INTERNATIONAL CONGRESS OF OTORHINOLARYNGOLOGY, Madrid, September 27-30.

INTERNATIONAL CONGRESS OF MIGRATION STATISTICIANS, Geneva, October 3-8.

TWO MEETINGS OF ORGANIZATION COMMITTEE FOR THE INTERNATIONAL MONETARY AND ECONOMIC CONFERENCE, Geneva, October 3 and November 22.

THIRD INTERNATIONAL CONGRESS ON RHEUMATISM, Paris, October 13-15.

MEETING OF THE EXPERTS' PREPARATORY COMMITTEE FOR THE INTERNATIONAL MONETARY AND ECONOMIC CONFERENCE, Geneva, October 31-November 12, 1932.

AMERICAN PEACE MOVEMENT

BY WILLIAM T. STONE

WASHINGTON REPRESENTATIVE, FOREIGN POLICY ASSOCIATION

HISTORICAL REVIEW

The organized peace movement in

America is more than a 100 years old, dating from 1815, when the first na-

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tional peace society was founded. Up until the turn of the century, the peace movement was essentially religious and spiritual; its support and its membership were drawn largely from the churches and its efforts were directed toward building a moral attitude on issues of war and peace. Following the World War, however, the peace movement was augmented by a great many national and local groups formed to advocate the principles of international organization and to initiate or encourage special policies by the government. Particular emphasis was placed on education with the object of creating an informed public opinion on international problems and advocating a program of international cooperation. The adoption of the Kellogg Pact in 1928 was welcomed by the peace movement as a clear, official recognition of the objective toward which it was working.

SCOPE OF ORGANIZED EFFORT

Religious Bodies.—It is difficult to fix the precise limits of what is loosely termed the peace movement; several distinct types of organization are represented in the movement for better international understanding and world cooperation. Perhaps the largest in point of numbers is the group of religious organizations. This includes such societies as the World Alliance for International Friendship Through the Churches which is concerned exclusively with world peace, and the Federal Council of Churches of Christ in America which maintains a Commission on International Justice and Good Will. The Society of Friends, the Catholic Church in America and the various Protestant denominations also maintain peace sections or international relations committees.

Pacifist Societies.—A second group is composed of non-religious pacifist societies such as the National Council for the Prevention of War with which some thirty different organizations are affiliated.

Peace Education Agencies.—A third group is composed of organizations devoted primarily to peace edu-

cation such as the Carnegie Foundation for International Peace, the World Peace Foundation, and the League of Nations Associations.

Other Groups.—Finally, a large number of civic associations and businessmen's and professional clubs concern themselves with international problems. This group includes the League of Women Voters, the American Federation of Women's Clubs, the Rotary International and many other similar groups.

OBJECTIVES OF THE MOVEMENT

The trend of international events during 1932 inevitably produced their effect on the peace movement and led to a reexamination of the general objectives laid down in the early post-war years. Peace groups were compelled to recognize that their demands on important issues were often ignored by the government; despite the fact that virtually every peace organization in the country favored American adherence to the World Court, the Senate failed to act on the Protocols during the year. Likewise, despite the thousands of appeals sent to the Disarmament Conference, the peace movement was forced to acknowledge at the end of the year that the results at Geneva had been meager indeed.

CHANGES IN POLICY

Thus the political effectiveness of the movement as a whole was frankly questioned by peace leaders themselves with the result that several important changes in policy were made during the year. Three tendencies were particularly notable: (1) the closer coordination of existing agencies, (2) the growing political consciousness of peace organizations, (3) the development of a "left wing" peace group which emphasized the economic organization of society as a primary cause of war.

COORDINATION OF INDEPENDENT GROUPS

Coordination of the efforts of separate peace groups on special issues was achieved by the National World Court Committee which brought to-

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gether representative leaders of peace groups throughout the country in a campaign for adoption of the Court Protocols by the Senate. Another attempt to coordinate the work of independent groups was begun in 1931 with the formation of the Interorganization Council on Disarmament. Officers and members of more than thirty national organizations participated in the work of this Council, through which they sought to unify their efforts toward disarmament.

POLITICAL ASPECTS

The election campaign of 1932 emphasized the need for developing a new political consciousness among peace groups. Several peace societies sent delegations to the two national political conventions to present their programs for international cooperation. A conference on political strategy for peace was held in Chicago between the political conventions. From that conference the National Council for the Prevention of War developed a definite plan to organize local councils in every Congressional district which will reach all classes of voters and through which members of Congress will hear directly from their constituents. The League of Nations Association announced a plan to appoint chairmen in all Congressional

districts, while other groups have begun to organize Congressional district committees.

EMERGENCY PEACE COMMITTEE

Influenced by the course of the world economic crisis during 1932 several leaders of the "left wing" of the peace movement organized the Emergency Peace Committee with the object of formulating policies to meet the present world situation. In general, this group accepted the Socialist interpretation of the world crisis and held that war was inherent in the capitalist system. The only effective way to combat war, according to this view, is to substitute a new social and economic system.

THE OUTLOOK

In spite of the failure of governments to make any material progress toward international cooperation during 1932, the peace movement as a whole was not without hope for the future. The effort to bring home to the average citizen the interdependence of the modern world and the need for new national policies was not without result and there were many evidences that a better informed public opinion had been developed during the year.

THE UNITED STATES AND THE LEAGUE OF NATIONS, WORLD COURT AND INTERNATIONAL LABOR OFFICE

BY ARTHUR SWEETSER

AMERICAN MEMBER, SECRETARIAT OF THE LEAGUE OF NATIONS

GROWTH OF AMERICAN LEAGUE COÖPERATION

Evolution of U. S. Attitude.—The year 1932 saw the end of a 12-year cycle of America's relationship to the League of Nations and the organized international life therein symbolized. During that cycle American foreign policy had been severely limited by the inhibitions of the 1920 treaty fight. Despite that, however, the government's attitude towards the League had constantly and almost of

necessity evolved from early non-recognition to widespread and cordial coöperation. Forces were marching in the world more powerful than any political group of viewpoint. Coöperation had broadened in the Hoover administration to bring the United States into the fullest possible association with the League short of a formal and regularized relationship. The year saw this American coöperation with the League reach its highest point. In the most serious dispute

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since the World War, the Sino-Japanese conflict, the American government operated in intimate contact with the League, and though not formally represented in the critical discussions at Geneva, suggested policies which the League later followed, adopted policies which the League itself suggested, collaborated actively on the Shanghai incident and the Lytton Commission. As a result of this experience ways were being sought by the Administration to bridge the gap now existing in the system of international consultation in time of crisis. So, also, at the World Disarmament Conference, a very strong American delegation headed at one time by the Secretary of State himself, took a most prominent part, first in June through the Hoover proposals for nearly a third cut in world armaments, and later in December through Norman Davis' negotiations for an immediate consolidation of results by then achieved.

Similarly, in the preparation for another vast gathering, the World Economic Conference, the United States played a full role by representation both on the Organizing Committee of the Council and on the Preparatory Committee of Experts. In another hitherto almost closed field, that of coöperation in Latin-America, most substantial progress was made through the opening up of collaboration between the League and the Commission of Neutrals in Washington over the Chaco dispute between Bolivia and Paraguay. Some progress, although not decisive, was made in the combined efforts for Liberian reconstruction. In the humanitarian field, the United States was the first nation to ratify the League's 1931 Opium Convention and coöperated in many other phases of the League's social work, though this latter was considerably reduced during 1932 through the inescapable concentration on other more immediate issues pressing for League attention.

Stimson at a League Meeting.—A symbolic illustration of America's developing attitude occurred in April when for the first time in the history of the League a Secretary of State of

the United States crossed the League's threshold and quietly and informally took his seat in a League meeting. Mr. Stimson was but following in the footsteps of Sir Austen Chamberlain, Aristide Briand, Gustav Stresemann and many other responsible for the foreign policies of their governments, but his action as representative of a non-member State could not but have a greater significance. In addition to disarmament, he said, in a formal statement, "I have discussed with the leaders of States problems in which their States and the United States are mutually interested, particularly those relating to the Far East. These discussions have been most informing and valuable . . . I am more and more impressed with the immense value which accrues to an American Secretary of State" of such discussions. "Such personal contact is of the greatest assistance in promoting our best interests in the field of foreign affairs and contributes to a better understanding between the governments concerned and the individuals conducting those affairs."

The Outlook.—The development of American coöperation with the League, even under Republican administration, to the furthestmost point possible short of a regular, formalized relationship and the turn of political power in America to new hands free from the old limitations led to the hope both in the United States and in Europe that the present anomalous situation might be converted into a more normal one affording America full right of representation to protect her interests and make her contribution to improved world organization, without, at the same time, implying responsibilities beyond her wishes. The year had seen coöperation develop to such a point and had so clearly marked the possible avenues of settlement that the transition to a more satisfactory final basis seemed neither revolutionary in practice nor difficult of formulation.

THE FAR EAST

U. S. Influence in League Policy.—The most critical international problem of 1932 and indeed since the

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World War was the Sino-Japanese dispute which had profound repercussions on all international life. The United States was both vitally important to its discussions and vitally affected by the results. By the very nature of the situation, League policy was predominantly influenced by the views of a nation so active in the Far East as the United States, while American policy was not less predominantly influenced by the fact that it was the League which had the dispute under adjudication. Parallel and often simultaneous action, therefore, resulted, even though, because of America's non-membership in the League, the advantages of single action were often lost.

Statement of U. S. Policy.—Early in January the United States announced a policy which was to influence the whole future course of the dispute, whether inside the League or out. On Jan. 7 Secretary Stimson notified both Japan and China that, the last vestige of regular Chinese administration in Manchuria having been extinguished by the recent Chin Chow military movements, and despite the American government's confidence that the League Commission would "facilitate an ultimate solution" of the difficulties, the United States did not intend "to recognize any situation, treaty or agreement which may be brought about contrary to the covenants and obligations of the Pact of Paris, August 27, 1928, to which treaty both China and Japan as well as the United States are parties." This declaration proved the pivotal point of months of subsequent negotiation. Though sent only to the six other signatories of the Nine-Power Treaty and not transmitted to the League of Nations, its effect was worldwide. On the one hand it showed the determined policy of the United States; on the other it suggested a new philosophy and a new method in international life. It at once drew forth declarations from Great Britain, Japan and other States and became a fundamental consideration in the forthcoming Council and Assembly debates.

U. S. and Lytton Commission.—

Simultaneously with this note, the United States was actively coöperating with the League regarding the Lytton Commission. On Jan. 22 the American Consul in Geneva formally notified the League of the acceptance by General Frank R. McCoy of the United States army, of the invitation to serve on the Commission, and represented him at a first organizing meeting of the Commission in Geneva. Later the government notified the League that "American officials in China and Japan have been instructed to render the Commission all appropriate aid" and did in fact do so. Several other Americans actively participated in the Commission's work. Prof. Blakeslee and C. Walter Young as experts and Lt. Biddle as aid to General McCoy. Finally, when a special copy of the Lytton report was transmitted to Washington, the government arranged for publication there on Oct. 1 simultaneously with Geneva.

Coöperation to Meet Emergency.—Meanwhile, however, a local incident in Shanghai on Jan. 20 touched off a spark which nearly set the whole Far East in flames. A chance encounter, sharp words, quick movements of warships, and demands for redress followed with lightning speed. With Chinese and Japanese troops in actual conflict, with ships and troops of other nations being rushed to the scene, attempts at settlement were made by the Council meeting in Geneva on the 25th and by British, American and other agencies on the spot. On Jan. 29, the President of the Council, summarizing the present emergency, reiterated as part of the Council's policy the doctrine of non-recognition announced by the United States. Simultaneously, the Secretary-General, in the imperative need of information from the spot, asked the United States if it would coöperate with certain Council members in the creation of a commission at Shanghai to study and report on the facts and causes of the incidents. On Feb. 1 the government replied that, while it could not appoint an official representative as member, it would instruct a representative to coöperate. This was duly done, and

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an American official participated in the various reports, including that of Feb. 4 that "a state of open war" had existed since Feb. 3. It is impossible to trace in detail the dramatic succession of events which followed.

End of Shanghai Fighting.—Meanwhile the Special Assembly came together on March 3 for one of the most dramatic and important international gatherings ever held. It had before it both the immediate Shanghai danger and the far more deeply rooted original dispute. As regards the first, an armistice resolution was immediately voted, the United States again formally notifying its agreement and coöperation. This time, fortunately, success was achieved and hostilities ended.

U. S. and the League Assembly.—The nations at Geneva then turned back to the substance of the dispute. Just before the meeting, on Feb. 24, the United States had taken another important step in transmitting to the League for information Secretary Stimson's letter to Senator Borah, Chairman of the Senate Foreign Relations Committee, outlining the American viewpoint with a detail and a frankness hitherto unapproached. Similarly, at the Special Assembly, nation followed nation in expressing its viewpoint and philosophy towards the great conflict which had suddenly cut straight through international life. On March 11, a resolution was unanimously adopted, except for the parties, reaffirming the principles of law and treaties which should guide the final settlement and providing the mechanism of negotiation therefor. The United States immediately identified itself with this resolution. That same day the American Minister transmitted a statement by Secretary Stimson that "the action of the Assembly expresses the purpose for peace which is found both in the Pact of Paris and the Covenant of the League of Nations. . . It will go far towards developing into terms of international law the principles of order and justice which underlie those treaties and the government of the United States has been glad to coöperate

earnestly in this effort." On the following day, the American Minister transmitted a still more formal acknowledgment expressing "its gratification" at the Assembly's action, especially in that "the nations of the world are united on a policy not to recognize the validity of results obtained in violation of the treaties in question," which the government felt to be "a distinct contribution to international law and to offer a constructive basis for peace."

Events Pending the Lytton Report.—Then followed long months awaiting the Lytton report. Those months were featured from the American viewpoint by Secretary Stimson's visit to Geneva in April, when he discussed the Far Eastern situation with the leading statesmen of the powers and of the League, and by speeches both by Secretary Stimson and President Hoover indicating the desirability of bridging the gap now existing in international coöperation in event of emergency and holding out the hope of some kind of consultative arrangement to offset the difficulties resulting from America's non-representation in the League's organized peace effort. At the end of the year, came the beginning of the final discussions on the Lytton report. Though the United States had published this report, and General McCoy was in Geneva as a member of the Commission, there was at that moment no formal and official coöperation. The government seemed to feel that the matter was under adjudication by the League, that it was for the League to come to its decision in all freedom, and that, until it did so, America should maintain full reserve. The Geneva discussions during December led to a draft proposal from the Committee of Nineteen to both China and Japan, which included *inter alia* a suggestion of conciliation in collaboration with the United States and Russia, but, as major difficulties developed the wisest course was felt to be to adjourn over the holidays. Thus, a year of far-reaching coöperation between the United States and the League in a most vital international conflict ended with the forecast of

still more serious coöperation the coming year.

DISARMAMENT

U. S. Participation. — The World Disarmament Conference, unquestionably the most ambitious international gathering ever convened, met throughout the year under the shadow of the Far Eastern crisis. The United States took a leading, and, on two occasions, a dominant part in the Disarmament Conference. During the years of preparation, its policy had slowly evolved from extreme caution, to general coöperativeness; in the preparations for representation the government seemed to feel that the Conference was largely for land disarmament, that America had already done her part through naval reductions, and that she would, therefore, be somewhat of a benevolent observer. Nevertheless, she sent a strong delegation to Geneva and at the opening session made a general declaration which, if showing the same caution as those of the other delegations, nevertheless, evinced a determined interest. As time went on, however, America penetrated deeper and deeper into the Conference and became an ever more active participant, as strikingly shown when Secretary Stimson himself visited Geneva for a week.

Hoover Arms Cut Plan. — A first step came on April 11 when Ambassador Gibson initiated the principle of weakening the offense and strengthening the defense, which later became known as "quantitative disarmament." A development which was little less than sensational took place on June 22 when Ambassador Gibson requested a special meeting of the Conference and put before it the so-called Hoover plan for roughly a third reduction in world armaments. This was received as one of the most serious and drastic disarmament proposals ever made and fairly took the Conference off its feet. It suggested the abolition of all tanks, bombing airplanes, large mobile guns, and chemical warfare, a reduction of one third in all land forces above a certain police component and of the number and tonnage of battleships and sub-

marines, and of one fourth of the treaty tonnage of aircraft carriers, cruisers, and destroyers. Long negotiations followed out of which, failing general agreement on any of the plans suggested by the United States, Great Britain, France, Italy and Russia, a resolution of general principle was adopted on July 22 entailing detailed study by technical committees. These studies ran through the summer and autumn without final result. They were important as regards the United States, however, in showing widespread advance of policy. Firstly, they showed how deeply the United States had become integrated into every phase of the disarmament problem, not even excluding a growing appreciation of the importance of "security" and the political organization of peace. Secondly, the American delegation now pressed as one of the principal objectives of the Conference the creation of a Permanent Disarmament Commission which several years ago it had approached with great reserve. Thirdly, it accepted, though as a corollary measure, budgetary limitation which for years it had opposed and, while still having doubts regarding the limitation and regulation of private manufacture and traffic withdrew the constitutional objection which it had long pressed. In other words, America went far during this time to free itself for coöperation with the other nations along the lines which long study had shown to be desirable.

Adjournment and Results. — When, however, by the end of the year it seemed that adjournment might have to take place over the holidays without the registration of definite decisions, Norman Davis, who had since become head of the American delegation, pressed actively for a consolidation of the very appreciable results already achieved. After considerable negotiations, a meeting of the Five Great Powers most concerned was brought together at Geneva with Premiers Macdonald and Herriot present, and a first substantial result secured in an agreement on Germany's equality claim, failure to act on which had led that nation to withdraw from

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the Conference. Agreement was all but reached, also, on a very substantial program of actual reduction of armaments, but, with the time so short before the holidays, it was felt best to adjourn till early in 1933, with the new assurance of Germany's assistance and the likelihood of completing agreement on many of the principal points already discussed.

ECONOMICS AND FINANCE

The United States Government made full preparations during 1932 for participation in the still more ambitious World Economic Conference which grew out of the Lausanne Reparations agreements. Following the League's invitation, President Hoover asked and secured Congressional authority and an appropriation of \$40,000 for attendance at this meeting. The government duly made the two sets of appointments necessary, one to the Organizing Committee of the Council and the other to the Preparatory Committee of Experts. The former, which included Ambassador Sackett and Norman H. Davis, was of interest as one of the few instances in which the United States actually sat in a direct committee of the Council; it also gave opportunity through an exchange of notes and in sessions at Geneva to make clear that the United States was not prepared to discuss either the question of war debts or of specific tariff rates as distinct from tariff policies but wished to include the question of silver. The Experts Committee saw the appointment of Dr. E. E. Day and Dr. John H. Williams, who participated in the first session in Geneva in November, in collaboration with Dr. Herbert Feis, Economic Adviser of the State Department and a group of other governmental officials. American policy, however, even in this preparatory period, was inevitably confused because of the political upheaval in the presidential elections and it was not possible, therefore to penetrate into the substance of the subject.

THE WORLD COURT

American membership in the World Court remained still another year un-

accepted by the Senate. The so-called Root Protocol embodying the reservations accompanying the Senate's original ratification in 1926 and the Protocol of amendment of the original Statute, were rapidly being gratified by the other powers. The only positive difficulty which had developed, namely, Cuba's opposition to the amendments protocol, was removed during the year and complete agreement brought in sight, except for the United States. The most that was done in Washington during the year was the reporting out in June of the two Protocols from the Senate Foreign Relations Committee to the full Senate, the report, however, having the signature not of Senator Borah, Chairman of the Committee, but of Senators Walsh and Fess, and containing still another reservation inserted by Senator Moses despite the opposition of the two reporters. Action in the full Senate was continually delayed for one reason of political expediency or another and the year closed with still another appeal from the leaders of both political parties to make good the World Court planks in the two platforms.

INTERNATIONAL LAW

More extensive collaboration of the United States in the League's system of treaty-making and treaty-registration was evidenced during 1932. The Senate, which previously had shown a decided reluctance to ratify conventions drafted through the League, gave its consent to no less than three such documents, all of them, in fact, embodying particular American viewpoints. They were: (1) the 1931 Opium Convention which the government regarded as the most forward-looking agreement yet reached on the anti-drug campaign; (2) the Convention for the Regulation of Whaling, which had aroused considerable interest in certain circles in the United States; and (3) the Protocol relating to Military Clauses in certain Cases of Double Nationality, drafted at the first Codification Conference at the Hague in 1930 and containing a principle long contested for by the United States. In all three cases there were

references to, and administrative connections with, the League of Nations which a few years previously would have been found objectionable by the Senate, but by 1932 sentiment had moved far enough, and the purposes of these treaties were so much in line with American policy, that such objections no longer prevailed. Similarly, in connection with the preparation of further treaties through the process of codification, the United States continued to coöperate with the League, transmitting to Geneva a detailed statement of its views in the much discussed question of the nationality of married women, which had been raised at the First Codification Conference and had since led to excited Congressional hearings. Unofficially, also, the research group at the Harvard Law School, which had made such a big contribution to the First Conference, continued its preparation for the second. Finally, the State Department, though in no sense obligated to do so, continued throughout the year under a voluntary arrangement reached several years ago, to transmit to the League for information and publication in the Treaty Series all new American treaties as they became operative.

INTERNATIONAL LABOR ORGANIZATION

Reduction of Hours of Work.—When the Governing Body of the International Labor Office decided, at a special meeting held September 21 and 22, to convene for January, 1933, a Tripartite Preparatory Conference on the Reduction of Hours of Work, it authorized the Director to get in touch with the States which are not members of the Organization with a view to securing their participation in the Conference. An invitation was, therefore, addressed to the United States Government, which decided to instruct Prentiss B. Gilbert to represent it, as an observer, at this Conference.

Commission on Women's Work.—With the approval of the Department of Labor, Miss Mary Anderson, Chief of the Women's Bureau, accepted membership in the Commission on

Women's Work set up by the International Labor Organization. Other American members of this Commission include: Miss Elizabeth Morrissey, Vice-Chairman of the Catholic Conference of Industrial Problems; Miss Mary van Kleeck, Director of the Department of Industrial Studies, Russell Sage Foundation; Miss Ethel Smith, National Women's Trade Union League; Mrs. Burnita Shelton Matthews, Vice-President of the National Association of Women Lawyers.

Migration Statistics.—The United States was represented officially at the International Conference of Migration Statisticians held at the International Labor Office from Oct. 3-7, at which delegates from 25 countries were present. The United States representative, Professor Walter F. Willcox of Cornell University, was elected Vice-Chairman of this Conference.

American Federation of Labor.—In addition to their attendance at the British Trades Union Congress this year, the fraternal delegates, Messrs. J. A. Franklin and E. E. Milliman, from the American Federation of Labor, paid a visit to the I. L. O. and later reported at some length on that visit to the Convention at Cincinnati. Two resolutions on the I. L. O. were introduced and referred for action to the Executive Council at the American Federation of Labor Convention at Cincinnati, Ohio, late in November. Through its action on the first of these resolutions, the A. F. of L. favored the participation of the American Government in the forthcoming Tripartite Preparatory Conference on the Shorter Work Week, and asked for the appointment of a labor representative to the American delegation. The second resolution called for a permanent official attaché from the U. S. Department of Labor to be stationed at the I. L. O. in Geneva, and was referred to the Executive Council for consideration.

Industrial Relations.—Arthur H. Young, Industrial Relations Counsel, Industrial Relations Counselors, Inc., of New York, attended the International Labor Conference in April, and conferred with the I. L. O. officials on the question of industrial relations.

II. INTERNATIONAL RELATIONS AFFECTING THE U. S.

In the course of the year, T. G. Spates who, as European representative of Industrial Relations Counselors, had for some years participated in all the industrial relations work of the Office, returned to the New York Office. Dr. Bryce M. Stewart, of the same organization, visited the Office in the summer in connection with his study of unemployment insurance. G. A. Johnston, Chief of Section in the I. L. O., in the course of a visit to the United States, made a special study of industrial relations practice in the Pequot Mills of the Naumkeag Steam Cotton Company, Salem, Mass.

League of Nations Association.—In the course of the year the League of Nations Association set up an advisory Committee on the International Labor Organization. This committee, the chairman of which is Prof. Joseph H. Willits, Dean of the Wharton School of Finance and Economics, University of Pennsylvania, has an influential and representative executive committee which is already taking steps to develop close and effective relations between the United States and the I. L. O.

THE INSTITUTE OF POLITICS

By WALTER WALLACE McLAREN

PROFESSOR, WILLIAMS COLLEGE

THE ECONOMIC INFLUENCE

The twelfth session of the Institute coincided in time with the Presidential campaign and consequently, to some extent, its program was affected by the platforms of the national parties; moreover, the session during the third year of the depression, and coming at the close of a violent financial panic, not only in this country but throughout the world, the atmosphere of its discussions, if not the subject matter, was dominated by recent events. In the main, therefore, the twelfth session was devoted to the discussion of economic and financial matters of international importance and to its corollary, what if anything can the United States do to improve the world situation.

PROGRAM OF THE TWELFTH SESSION

The program of the session included many of the questions of major interest and some of those attracting most attention were the Disarmament Conference, the proposed World Economic Conference, the Imperial Economic Conference at Ottawa, and the situation in the Far East. The final answers to practi-

cally all of these questions, it was recognized, could only be given in the future; and, it likewise soon became apparent that the part which the United States could play in their solution varied greatly in importance.

AMERICA AND THE NEW WORLD ORDER

A wide general outlook upon the future was presented under the title "The Disintegration of the Modern World Order," and the view adopted largely by the members of the Institute was that the nineteenth century role of Great Britain, dominating the world economic order, was played out and that new forces had come into the picture whose features could not as yet be clearly seen. How important a part the United States is to play in the new order, it was agreed, would depend upon the willingness of the American people to assume the burdens and responsibilities incidental to leadership in the new era. America's "great opportunity" was emphasized in connection with the Lausanne agreement and the possibility of its subsequent ratification by the powers primarily interested. Would the

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

United States improve its opportunity by revising downward the inter-allied debt payments. Would America continue her political isolationist policy and assume an air of detachment toward the struggles of the European powers to bring order into the existing chaos.

LECTURES

Discussion.—The lectures brought forward a whole series of national points of view from Great Britain, France, Germany, Italy, China and Japan, mainly on the economic aspects of policy. The growth of trade barriers throughout the world was deplored and explained the almost total disappearance of international cooperation and the substitution in its place of an economic isolationist policy, following the example set by the United States in 1930. The sense of the Institute discussions, in the main, reiterated the vital necessity of cooperation among the nations on the basis of an understanding of their individual problems.

Lecture Courses.—The following courses of lectures were given: Possibilities of Economic Planning—the Actual Situation in Germany, Professor Herbert von Beckerath, Bonn University; The Industrial and Economic Organization of France, M. Pierre Lyautey, Editor of *La Journée Industrielle*, Paris; Italy and the World Crisis, Dr. Luigi Villari, Rome; The Financial Outlook in England, Professor T. E. Gregory, London School of Economics; A British View of the World Economic Order, Arnold Toynbee, Royal Institute

of International Affairs, London; Japan and the Asiatic Continent, Dr. Inazo Nitobe, Tokyo, and Nation Building in China, Dr. T. Z. Koo, Peiping.

ROUND TABLES

The following is a list of the round table subjects, with their respective leaders: Contrasts in Latin American Civilization, Dr. Stephen P. Duggan, Institute of International Education; The Present Position of the Credit Problem, Professor T. E. Gregory, London School of Economics; The Disintegration of the Modern World Order, Arnold J. Toynbee, Royal Institute of International Affairs, and Professor Edwin F. Gay, Harvard University; Sino-Japanese Relations in Eastern Asia, Henry Kittredge Norton, Ossining, N. Y.; The Peace Treaties and the Map of Europe, Professor Bernadotte E. Schmitt, University of Chicago, and American Economic Foreign Policy, W. W. Cumberland, New York City, and Professor John H. Williams, Harvard University.

SPECIAL CONFERENCES

Special general conferences were held as follows: Limitation of Armaments, Dr. Raymond L. Buell, Foreign Policy Association, New York; The Imperial Economic Conference at Ottawa, Dr. P. E. Corbett, McGill University; The St. Lawrence Waterway, Dr. Walter W. McLaren, Williams College, and Secretary Stimson's Statement of August Eighth, Dr. Stephen P. Duggan, Institute of International Education, New York.

DIVISION II

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

GENERAL

ACADEMY OF POLITICAL SCIENCE IN THE CITY OF NEW YORK, Fayerweather Hall, Columbia University, New York City.

AMERICAN PEACE AWARD, 565 Fifth Ave., New York City.

AMERICAN PEACE SOCIETY, 734 Jackson Place, Washington, D. C.

II. INTERNATIONAL RELATIONS AFFECTING THE U. S.

AMERICAN SOCIETY OF INTERNATIONAL LAW, 2 Jackson Place, N. W., Washington, D. C.

ARBITRATION SOCIETY OF AMERICA, INC., 342 Madison Ave., New York City.

CARNEGIE ENDOWMENT FOR INTERNATIONAL PEACE, 2 Jackson Place, N. W., Washington, D. C.

COUNCIL OF ARBITRATION, 342 Madison Ave., New York City.

COUNCIL ON FOREIGN RELATIONS, INC., 25 West 43rd Street, New York City.

FOREIGN POLICY ASSN., 18 East 41st Street, New York City.

INSTITUTE OF CURRENT WORLD AFFAIRS, 522 Fifth Ave., New York City.

INTERNATIONAL LAW FOUNDATION, 165 Broadway, New York City.

INTERNATIONAL REFORM FEDERATION, 206 Pennsylvania Ave. S. E., Washington, D. C.

LEAGUE OF NATIONS NON-PARTISAN ASSN., 6 East 39th Street, New York City.

LEAGUE OF NATIONS UNION, 70 Fifth Ave., New York City.

NATIONAL COUNCIL FOR PREVENTION OF WAR, 532 17th Street N. W., Washington, D. C.

PEOPLE'S RECONSTRUCTION LEAGUE, 35 B Street N. W., Washington, D. C.

WOMEN'S INTERNATIONAL LEAGUE FOR PEACE AND FREEDOM, 15 East 40th Street, New York City.

WOMEN'S PEACE SOCIETY, 20 Vesey Street, New York City.

WOMEN'S PEACE UNION, 39 Pearl Street, New York City.

WORLD PEACE FOUNDATION, 40 Mount Vernon Street, Boston, Mass.

REGIONAL

AMERICAN ASIATIC ASSN., 501 Fifth Ave., New York City.

ARMENIA-AMERICA SOCIETY, 289 Fourth Ave., New York City.

AMERICAN COMMITTEE FOR ARMENIAN INDEPENDENCE, 1 Madison Ave., New York City.

CHINA SOCIETY OF AMERICA, 19 West 44th Street, New York City.

COMMITTEE ON COOPERATION IN LATIN AMERICA, 419 Fourth Ave., New York City.

ENGLISH-SPEAKING UNION OF THE UNITED STATES, 19 West 44th St., New York City.

FAR EAST CONFERENCE, 25 Beaver Street, New York City.

FRENCH INSTITUTE OF THE UNITED STATES, 22 East 60th Street, New York City.

FRIENDS OF FREEDOM FOR INDIA, 799 Broadway, New York City.

FRIENDS OF IRISH FREEDOM, 280 Broadway, New York City.

JAPAN SOCIETY, INC., 36 West 44th Street, New York City.

NATIONAL ASSN. FOR PROTECTION OF AMERICAN RIGHTS IN MEXICO, 17 Battery Place, New York City.

NETHERLANDS ASSN. OF NORTH AMERICA, 179 S. Trenchard Street, Yonkers, N. Y.

PAN-AMERICAN SOCIETY OF THE UNITED STATES, INC., 67 Broad Street, New York City.

PAN-PACIFIC UNION, Honolulu, Hawaii.

PART TWO

AMERICAN GOVERNMENT

DIVISION III

THE NATIONAL GOVERNMENT

PERSONNEL OF CONGRESS, 1932-1933

BY MILTON CONOVER

PROFESSOR, YALE UNIVERSITY

THE SENATE

Party Alignment.—During 1932, there were four new Senators and eleven Representatives to enter the Congress due to resignations and death. Consequently, the political alignment was disturbed somewhat. In December, 1931, the party representation in the Senate was Republicans 47, Democrats 47, Farmer-Labor 1, and one vacancy. One year later it was Republicans 47, Democrats 48, and Farmer-Labor 1. This guaranteed watchful waiting on the part of all concerned, thereby preventing rash action during the depression. The four new Senators were appointed by the Governors of their respective states to fill vacancies caused by death. On political party lines they divided equally—two going to each major party—thereby rendering a total gain of one for the Democrats.

New Members.—Four different geographical political sections were represented by the new members. In New Jersey, W. Warren Barbour, Republican, was appointed to fill the unexpired term of the late Senator Dwight Morrow, who died suddenly, and on Nov. 8, 1932, he was elected for a term ending March 3, 1937. In Georgia, John Sanford Cohen, Democrat, was appointed to succeed the

late Senator William L. Harris. Mr. Cohen had been secretary to Hoke Smith when the latter was in national official life, and he had been a National Committeeman of his party. From Colorado, Walter Walker, Democrat, was appointed to the position previously held by the late Senator Charles W. Waterman, Republican. The sudden death of the veteran Senator Wesley L. Jones of Washington caused another vacancy which was filled in November by the appointment of Elijah S. Grammer, Republican.

HOUSE OF REPRESENTATIVES

New Members.—In the House of Representatives in December, 1931, there were 218 Democrats, 214 Republicans, 1 Farmer-Labor and two vacancies. In December, 1932, the roll stood Democrats 220, Republicans 211, Farmer-Labor 1, and two vacancies. The new members consisted of three Republicans and eight Democrats. They represented seven States,—Pennsylvania three, Georgia two, and one each from New Hampshire, New Jersey, Maryland, Virginia, and Mississippi. Unlike the senatorial replacements, all of these representatives were elected rather than appointed. Five were selected through special

III. THE NATIONAL GOVERNMENT

elections. Two were elected to the 73rd Congress, Nov. 8, at the same time that they were elected to the unexpired term of their predecessors in the 72nd Congress.

Pennsylvania.—The vacancies in the House began to occur early in the New Year, Representative J. Russell Leach of Pennsylvania resigning Jan. 29 and becoming a member of the U. S. Board of Tax Appeals. He was succeeded by Howard W. Stull, Republican, who was elected in April but was not a candidate for re-election. He was not new to Washington, having been previously an assistant chief of a division in the Treasury Department. Robert Lee Davis, Republican, Pennsylvania, was elected at the regular election to succeed George A. Welsh, resigned. Joseph F. Biddle, Republican, the third Pennsylvanian, was elected successor to Edward M. Beers, deceased.

Georgia.—Bryant T. Castellow, Democrat, was elected on Nov. 8, to succeed Charles R. Crisp who resigned. He was also elected to the 73rd Congress. His colleague, William C. Mobley, Democrat, was chosen at a special election in March as successor to Samuel Rutherford, but he was not a candidate for the 73rd Congress.

New Hampshire.—William N. Rogers, Democrat, was elected Jan. 5, 1932, for the unexpired term of Fletcher Hale, deceased. Mr. Rogers had served in the 68th Congress.

New Jersey.—Percy H. Stewart, Democrat, replaced the late Representative Ernest R. Ackerman.

Illinois.—Stanley H. Kunz, Democrat, represented the district formerly held by Peter C. Granada.

Maryland lost a veteran representative of ten consecutive terms through the death of J. Charles Linthicum. At the regular election in November, his district selected Ambrose J. Kennedy, Democrat, to serve out the unexpired term as well as in the 73rd Congress.

Virginia likewise lost a representative of nearly ten terms experience

by the passing of the scholar-statesman, Henry St. George Tucker, whose place is filled by Joel West Flood.

Mississippi.—Russell Ellzey, Democrat, was elected to replace the late Representative Percy E. Quin.

Puerto Rico.—José L. Pesquera, Nonpartisan, was appointed Resident Commissioner in place of Félix Córdova Dávila who resigned.

Unfilled Vacancies.—As late as Dec. 5, 1932, there remained three vacancies in the House of Representatives, being the positions formerly occupied by Frederick W. Dallinger of Massachusetts, Albert H. Vestal of Indiana, and Charles A. Karch of Illinois. On December 13, 1932, Representative Daniel E. Garrett, Democrat of Texas passed away.

POLITICAL COMPLEXION OF 73D CONGRESS

The elections of November 8, 1932, indicated that the 73rd Congress which assembles in 1933 will be drastically overbalanced in party power. For the Senate is recorded 59 Democrats, 36 Republicans and one third-party senator. To the House was elected 313 Democrats, 117 Republicans and five third-party congressmen. This apparent political landslide in the congressional elections, however, was not entirely due to a change of political party on the part of the voters. The splitting of party formation by local minor independent parties bolting from major parties had their effect. In several states there were such revolts—slight on the surface—but sufficient to reverse the party in power in given states. This presages new factors in the congressional elections of 1934, because some plans have been considered that aim to co-ordinate these sporadic political state movements into coordinated national congressional drive in 1934, incorporating the Farmer-Labor party and other groups into a Commonwealth party seeking to modify the alignment as presented for the Seventy-third Congress in 1933.

MEMBERS OF THE SENATE

MEMBERS OF THE SENATE

Compiled from the Congressional Directory, Year 1932

Dates show beginning of service in the Senate. Names of Republicans are in Roman type; those of Democrats in *Italic*; Farmer-Labor in ROMAN CAPS.

ALABAMA

John H. Bankhead (1931).
Hugo L. Black (1927).

ARIZONA

Henry F. Ashurst (1912).
Carl Hayden (1927).

ARKANSAS

Joseph T. Robinson (1913).
H. W. Caraway (1931).

CALIFORNIA

Hiram W. Johnson (1917).
Samuel M. Shortridge (1921).

COLORADO

Edward P. Costigan (1931).
Walter Walker (1932).

CONNECTICUT

Hiram Bingham (1924).
Frederic C. Walcott (1929).

DELAWARE

Daniel O. Hastings (1929).
John G. Townsend, Jr.
(1929).

FLORIDA

Duncan U. Fletcher (1909).
Park Trammell (1917).

GEORGIA

John S. Cohen (1932).
Walter F. George (1922).

IDAHO

William E. Borah (1907).
John Thomas (1928).

ILLINOIS

Otis F. Glenn (1929).
James H. Lewis (1931).

INDIANA

James E. Watson (1917).
Arthur R. Robinson (1925).

IOWA

Smith W. Brookhart (1922).
L. J. Dickinson (1931).

KANSAS

Arthur Kapper (1919).
George McGill (1931).

KENTUCKY

Alben W. Barkley (1927).
Marvel M. Logan (1931).

LOUISIANA

Edwin S. Broussard (1921).
Huey P. Long (1931).

MAINE

Frederick Hale (1917).
Wallace H. White, Jr.
(1931).

MARYLAND

Phillips L. Goldsborough
(1929).
Millard E. Tydings (1923).

MASSACHUSETTS

Marcus A. Coolidge (1931).
David I. Walsh (1926).

MICHIGAN

James Couzens (1922).
Arthur H. Vandenberg
(1928).

MINNESOTA

Thomas D. Schall (1925).
HENRIK SHIPSTEAD
(1923).

MISSISSIPPI

Pat Harrison (1919).
Hubert D. Stephens (1923).

MISSOURI

Harry B. Hawes (1926).
Roscoe C. Patterson (1929).

MONTANA

Thomas J. Walsh (1913).
Burton K. Wheeler (1923).

NEBRASKA

Robert B. Howell (1923).
George W. Norris (1913).

NEVADA

Tasker L. Oddie (1921).
Key Pittman (1913).

NEW HAMPSHIRE

Henry W. Keyes (1919).
George H. Moses (1918).

NEW JERSEY

W. Warren Barbour (1932).
Hamilton F. Kean (1929).

NEW MEXICO

Sam G. Bratton (1925).
Bronson Cutting (1927).

NEW YORK

Royal S. Copeland (1923).
Robert F. Wagner (1927).

NORTH CAROLINA

Josiah W. Bailey (1931).
Cameron Morrison (1930).

NORTH DAKOTA

Lynn J. Frazier (1923).
Gerald P. Nye (1925).

OHIO

Robert J. Bulkley (1931).
Simeon D. Fess (1923).

OKLAHOMA

Thomas P. Gore (1931).
Elmer Thomas (1927).

OREGON

Charles L. McNary (1918).
Frederick Steiwer (1927).

PENNSYLVANIA

James J. Davis (1930).
David A. Reed (1922).

RHODE ISLAND

Felix Hebert (1929).
Jesse H. Metcalf (1924).

SOUTH CAROLINA

James F. Byrnes (1931).
Elision D. Smith (1909).

SOUTH DAKOTA

William J. Bulow (1931).
Peter Norbeck (1921).

TENNESSEE

Cordell Hull (1931).
Kenneth McKellar (1917).

TEXAS

Tom Connally (1929).
Morris Sheppard (1913).

UTAH

William H. King (1917).
Reed Smoot (1903).

VERMONT

Warren R. Austin (1931).
Porter H. Dale (1923).

VIRGINIA

Carter Glass (1920).
Claude A. Swanson (1910).

WASHINGTON

Clarence C. Dill (1923).
Elijah S. Grammer (1932).

III. THE NATIONAL GOVERNMENT

WEST VIRGINIA

Henry D. Hatfield (1929).
Matthew N. Neely (1931).

WISCONSIN

John J. Blaine (1927).
Robert M. LaFollette, Jr.
(1925).

WYOMING

Robert D. Carey (1930).
John B. Kendrick (1917).

MEMBERS OF THE HOUSE OF REPRESENTATIVES

Compiled from the Congressional Directory, Year 1932

Dates show beginning of service in the House. Names of Republicans are in Roman type; those of Democrats in *Italic*; Farmer-Labor in ROMAN CAPS.

ALABAMA

1. John McDuffie (1919).
2. Lister Hill (1923).
3. Henry B. Steagill (1914).
4. Lamar Jeffers (1921).
5. Lafayette L. Patterson (1928).
6. William B. Oliver (1915).
7. Miles C. Allgood (1923).
8. Edward B. Almon (1915).
9. George Huddleston (1915).
10. William B. Bankhead (1917).

ARIZONA

At large—Lewis W. Douglas (1927).

ARKANSAS

1. William J. Driver (1921).
2. John E. Miller (1931).
3. Claude A. Fuller (1929).
4. Effiegene Wingo (1930).
5. Heartsill Ragon (1923).
6. D. D. Glover (1929).
7. Tilman B. Parks (1921).

CALIFORNIA

1. Clarence F. Lea (1917).
2. Harry L. Englebright (1926).
3. Charles F. Curry (1931).
4. Florence P. Kahn (1925).
5. Richard J. Welch (1925).
6. Albert E. Carter (1925).
7. Henry E. Barbour (1919).
8. Arthur M. Free (1921).
9. William E. Evans (1926).
10. Joe Crall (1927).
11. Phillip D. Swing (1921).

COLORADO

1. William R. Eaton (1929).
2. Charles B. Timberlake (1915).
3. Guy U. Hardy (1919).
4. Edward T. Taylor (1909).

CONNECTICUT

1. Augustine Lonergan (1931).
2. Richard P. Freeman (1915).
3. John Q. Tilton (1915).
4. William L. Tierney (1931).
5. Edward W. Goss (1930).

DELAWARE

At large—Robert G. Houston (1925).

FLORIDA

1. Herbert J. Drane (1917).
2. Robert A. Green (1925).
3. Thomas A. Yon (1927).
4. Ruth Bryan Owen (1929).

GEORGIA

1. Homer C. Parker (1931).
2. E. E. Cox (1925).
3. Bryant T. Castellow (1932).
4. William C. Wright (1918).
5. Robert Ramspeck (1929).
6. William C. Mobley (1932).
7. Malcolm C. Tarver (1927).
8. Charles H. Brand (1917).
9. John S. Wood (1931).
10. Carl Vinson (1914).
11. William C. Lankford (1919).
12. William W. Larsen (1917).

IDAHO

1. Burton L. French (1917).
2. Addison T. Smith (1913).

ILLINOIS

At large—Richard Yates (1919).

William H. Dieterich (1931).

1. Oscar De Priest (1929).
2. Morton D. Hull (1923).
3. Edward A. Kelly (1931).
4. Harry P. Beam (1931).
5. Adolph J. Sabath (1907).
6. James T. Igoe (1926).
7. Leonard W. Schuetz (1931).
8. Stanley H. Kunz (1932).
9. Fred A. Britten (1913).
10. Carl R. Chindblom (1919).
11. Frank R. Reid (1923).
12. John T. Buckbee (1926).
13. William R. Johnson (1925).
14. John C. Allen (1925).
15. Burnett M. Chipfield (1930).

16. William E. Hull (1923).
17. Homer W. Hall (1927).
18. William P. Holaday (1923).
19. Charles Adkins (1925).
20. Henry T. Rainey (1923).
21. J. Earl Major (1931).
22. Vacant.
23. William W. Arnold (1923).
24. Claude V. Parsons (1930).
25. Kent E. Keller (1931).

INDIANA

1. John W. Boehne, Jr. (1931).
2. Arthur H. Greenwood (1923).
3. Eugene B. Crowe (1931).
4. Harry O. Canfield (1923).
5. Courtland C. Gillen (1931).
6. William H. Larrabee (1931).
7. Louis Ludlow (1929).
8. Vacant.
9. Fred. S. Purnell (1917).
10. William R. Wood (1915).
11. Glenn Grisewold (1931).
12. David Hogg (1925).
13. Samuel B. Pettengill (1931).

IOWA

1. William F. Kopp (1921).
2. Bernhard M. Jacobsen (1931).
3. T. J. B. Robinson (1923).
4. Gilbert N. Haugen (1899).
5. Cyrenus Cole (1921).
6. C. W. Ramseyer (1915).
7. Cassius C. Dowell (1915).
8. Lloyd Thurston (1925).
9. C. E. Swanson (1929).
10. Fred C. Gilchrist (1931).
11. E. H. Campbell (1929).

KANSAS

1. W. P. Lambertson (1929).
2. U. S. Guyer (1926).
3. Harold McCugin (1931).
4. Homer Hoch (1919).
5. James G. Strong (1919).
6. Charles I. Sparks (1929).
7. Clifford R. Hope (1926).
8. W. A. Ayres (1923).

MEMBERS OF THE HOUSE OF REPRESENTATIVES

KENTUCKY

1. *William V. Gregory* (1927).
2. *Glover H. Carey* (1931).
3. *John W. Moore* (1925).
4. *Cap R. Carden* (1931).
5. *M. H. Thatcher* (1923).
6. *Brent Spence* (1931).
7. *Virgil Chapman* (1931).
8. *Ralph Gilbert* (1931).
9. *Fred M. Vincent* (1931).
10. *Andrew J. May* (1931).
11. *Charles Finley* (1930).

LOUISIANA

1. *Joachim O. Fernandez* (1931).
2. *Paul H. Maloney* (1931).
3. *Numa F. Montet* (1929).
4. *John N. Sandlin* (1921).
5. *R. J. Wilson* (1915).
6. *B. E. Kemp* (1925).
7. *E. L. DeRouen* (1927).
8. *John H. Overton* (1931).

MAINE

1. *C. L. Beedy* (1921).
2. *Donald B. Partridge* (1931).
3. *John E. Nelson* (1922).
4. *Donald F. Snow* (1929).

MARYLAND

1. *T. A. Goldsborough* (1921).
2. *Wm. P. Cole, Jr.* (1931).
3. *V. L. Palmisano* (1927).
4. *Ambrose J. Kennedy* (1932).
5. *S. W. Gambrell* (1924).
6. *David J. Lewis* (1931).

MASSACHUSETTS

1. *A. T. Treadway* (1913).
2. *W. J. Granfield* (1930).
3. *Frank H. Foss* (1925).
4. *Pehr G. Holmes* (1931).
5. *Edith N. Rogers* (1925).
6. *A. Piatt Andrew* (1921).
7. *W. P. Connery, Jr.* (1923).
8. Vacant.
9. *C. I. Underhill* (1921).
10. *John J. Douglass* (1925).
11. *G. H. Tinkham* (1915).
12. *J. W. McCormack* (1928).
13. *Robert Luce* (1919).
14. *R. B. Wigglesworth* (1928).
15. *J. W. Martin, Jr.* (1925).
16. *Charles L. Gifford* (1922).

MICHIGAN

1. *Robert H. Clancy* (1927).
2. *Earl C. Michener* (1919).
3. *Joseph L. Hooper* (1925).
4. *John C. Ketcham* (1921).
5. *Carl E. Mapes* (1913).
6. *Seymour H. Person* (1931).
7. *Jerse P. Wolcott* (1931).
8. *Michael J. Hart* (1931).

9. *J. C. McLaughlin* (1907).
10. *Roy O. Woodruff* (1921).
11. *Frank P. Bohn* (1926).
12. *W. Frank James* (1915).
13. *C. J. McLeod* (1923).

MINNESOTA

1. *Victor Christgau* (1929).
2. *Frank Clague* (1921).
3. *A. H. Andresen* (1925).
4. *Melvin J. Maas* (1927).
5. *William I. Nolan* (1929).
6. *Harold Knutson* (1917).
7. *PAUL J. KVALE* (1923).
8. *W. A. Pittenger* (1929).
9. *Conrad G. Selvig* (1926).
10. *G. G. Goodwin* (1925).

MISSISSIPPI

1. *John E. Rankin* (1921).
2. *Wall Doney* (1929).
3. *W. M. Whittington* (1925).
4. *Jeff Busby* (1923).
5. *Ross A. Collins* (1921).
6. *Robert S. Hall* (1929).
7. *Russell Ellzey* (1932).
8. *James W. Collier* (1909).

MISSOURI

1. *M. A. Romjue* (1923).
2. *Ralph F. Lozier* (1923).
3. *Jacob L. Milligan* (1923).
4. *David Hopkins* (1929).
5. *Joseph B. Shannon* (1931).
6. *Clement O. Dickinson* (1931).
7. *Robert D. Johnson* (1931).
8. *William L. Nelson* (1925).
9. *Clarence Cannon* (1923).
10. *H. F. Niedringhaus* (1927).
11. *John J. Cochran* (1927).
12. *Leonidas C. Dyer* (1917).
13. *Clyde Williams* (1931).
14. *James F. Fulbright* (1931).
15. *Joe J. Manlove* (1923).
16. *William E. Barton* (1931).

MONTANA

1. *John M. Evans* (1923).
2. *Scott Leavitt* (1923).

NEBRASKA

1. *John H. Moorehead* (1923).
2. *Malcolm Baldrige* (1931).
3. *Edgar Howard* (1923).
4. *John N. Norton* (1931).
5. *Ashton C. Shallenberger* (1931).
6. *R. G. Simmons* (1923).

NEVADA

- At large—*S. S. Arentz* (1925).

NEW HAMPSHIRE

1. *William N. Rogers* (1932).
2. *Edward H. Wason* (1915).

NEW JERSEY

1. *C. A. Wolverton* (1926).
2. *Isaac Bacharach* (1915).
3. *William H. Sutphin* (1931).
4. *Charles A. Eaton* (1925).
5. *Percy H. Stewart* (1932).
6. *Randolph Perkins* (1921).
7. *George N. Seger* (1923).
8. *F. A. Hartley, Jr.* (1929).
9. *Peter A. Caivechia* (1931).
10. *F. R. Lehlbach* (1915).
11. *O. L. Auf der Heide* (1925).
12. *Mary T. Norton* (1925).

NEW MEXICO

- At large—*Dennis Chavez* (1931).

NEW YORK

1. *Robert L. Bacon* (1923).
2. *W. F. Brunner* (1929).
3. *George W. Lindsay* (1923).
4. *Thomas H. Cullen* (1919).
5. *L. M. Black, Jr.* (1923).
6. *Andrew L. Somers* (1925).
7. *John J. Delaney* (1931).
8. *Patrick J. Carley* (1927).
9. *Stephen A. Rudd* (1931).
10. *Emanuel Celler* (1923).
11. *Anning S. Prall* (1923).
12. *Samuel Dickstein* (1923).
13. *C. D. Sullivan* (1917).
14. *W. I. Strovich* (1927).
15. *John J. Boylan* (1923).
16. *J. J. O'Connor* (1923).
17. *Ruth Pratt* (1929).
18. *M. J. Kennedy* (1930).
19. *Sol Bloom* (1923).
20. *F. H. LaGuardia* (1923).
21. *J. A. Gavagan* (1929).
22. *Anthony J. Griffin* (1917).
23. *Frank Oliver* (1923).
24. *J. M. Fitzpatrick* (1926).
25. *Charles D. Millard* (1931).
26. *Hamilton Fish, Jr.* (1920).
27. *Harcourt J. Pratt* (1925).
28. *Parker Corning* (1923).
29. *James S. Parker* (1913).
30. *Frank Crowther* (1919).
31. *Bertrand H. Snell* (1915).
32. *Francis D. Culkin* (1928).
33. *F. M. Davenport* (1925).
34. *John D. Clarke* (1921).
35. *C. E. Hancock* (1927).
36. *John Taber* (1923).
37. *Gale H. Stalker* (1923).
38. *James L. Whitley* (1929).
39. *Archle D. Sanders* (1917).

III. THE NATIONAL GOVERNMENT

40. Walter G. Andrews (1931).
41. Edmund F. Cooke (1929).
42. James M. Mead (1919).
43. Daniel A. Reed (1919).

NORTH CAROLINA

1. *Lindsay O. Warren* (1925).
2. *John H. Kerr* (1923).
3. *O. L. Abernethy* (1922).
4. *Edward W. Pou* (1901).
5. *F. W. Hancock, Jr.* (1930).
6. *J. Bayard Clark* (1929).
7. *John W. Lambeth* (1931).
8. *R. L. Doughton* (1911).
9. *A. L. Bulwinkle* (1931).
10. *Zebulen Weaver* (1931).

NORTH DAKOTA

1. O. B. Burtness (1921).
2. Thomas Hall (1924).
3. J. H. Sinclair (1919).

OHIO

1. John B. Hollister (1931).
2. William E. Hess (1929).
3. *Byron B. Harlan* (1931).
4. John L. Cable (1929).
5. *Frank C. Kniffin* (1931).
6. *James J. Polk* (1931).
7. Charles Brand (1923).
8. G. E. Mouser, Jr. (1929).
9. Wilbur McK. White (1931).
10. T. A. Jenkins (1925).
11. M. G. Underwood (1923).
12. *Arthur P. Lamneck* (1931).
13. *William L. Fiesinger* (1931).
14. Francis Selberling (1929).
15. C. Ellis Moore (1919).
16. C. B. McClintock (1929).
17. Charles West (1931).
18. Frank Murphy (1919).
19. John G. Cooper (1915).
20. *Martin L. Sweeney* (1931).
21. *Robert Crosser* (1923).
22. Chester C. Bolton (1929).

OKLAHOMA

1. *Wesley E. Disney* (1931).
2. *W. W. Hastings* (1923).
3. *Wilburn Cartwright* (1927).
4. *T. D. McKeown* (1923).
5. *Fletcher B. Swank* (1931).
6. *Jed Johnson* (1926).
7. *J. V. McCulloch* (1915).
8. M. C. Garber (1923).

OREGON

1. *Willis C. Hawley* (1907).
2. Robert R. Butler (1928).
3. *Charles H. Martin* (1931).

PENNSYLVANIA

1. James M. Beck (1927).
2. Edward L. Stokes (1931).

3. Harry C. Ransley (1920).
4. B. M. Golder (1925).
5. J. J. Connolly (1921).
6. Robert L. Davis (1932).
7. George P. Darrow (1915).
8. James Wolfenden (1928).
9. Henry W. Watson (1915).
10. J. R. Kinzer (1930).
11. *Patrick J. Boland* (1931).
12. C. M. Turpin (1929).
13. George F. Brumm (1929).
14. *Norton L. Lichtenwalner* (1931).
15. L. T. McFadden (1915).
16. Robert F. Rich (1930).
17. F. W. Magrady (1925).
18. Joseph F. Biddle (1932).
19. Isaac H. Doutrich (1926).
20. Howard W. Stull (1932).
21. J. Banks Kurtz (1923).
22. *Harry L. Haines* (1931).
23. J. Mitchell Chase (1927).
24. Samuel A. Kendall (1919).
25. Henry W. Temple (1915).
26. J. Howard Swick (1927).
27. Nathan L. Strong (1917).
28. T. C. Cochran (1926).
29. Milton W. Shreve (1919).
30. William R. Coyle (1929).
31. Adam M. Wyant (1921).
32. Edmund F. Erk (1930).
33. Clyde Kelly (1917).
34. Patrick J. Sullivan (1929).
35. Harry A. Estep (1927).
36. Guy E. Campbell (1917).

RHODE ISLAND

1. Clark Burdick (1919).
2. Richard S. Aldrich (1923).
3. *Francis B. Condon* (1930).

SOUTH CAROLINA

1. *T. S. McMillan* (1925).
2. *Butler B. Hare* (1925).
3. *Fred H. Dominick* (1917).
4. *John J. McSwain* (1921).
5. *W. F. Stevenson* (1917).
6. *Allard H. Gasque* (1928).
7. *H. P. Fulmer* (1921).

SOUTH DAKOTA

1. C. A. Christopherson (1919).
2. Royal C. Johnson (1915).
3. William Williamson (1921).

TENNESSEE

1. Oscar B. Lovette (1931).
2. J. Will Taylor (1919).
3. *S. D. McReynolds* (1923).
4. *John R. Mitchell* (1931).
5. *Edwin L. Davis* (1919).
6. *Joseph W. Byrns* (1909).
7. *Willia B. Ellick* (1932).
8. *Gordon Browning* (1923).
9. *Jere Cooper* (1929).
10. *Edward H. Crump* (1931).

TEXAS

1. *Wright Patnam* (1929).
2. *Martin Dies* (1931).
3. *Morgan G. Sanders* (1921).
4. *Sam Rayburn* (1913).
5. *H. W. Sumners* (1913).
6. *Luther A. Johnson* (1923).
7. *Clay Stone Briggs* (1919).
8. *Daniel E. Garrett* (1921).
9. *J. J. Mansfield* (1917).
10. *J. P. Buchanan* (1913).
11. *O. H. Cross* (1929).
12. *Fritz G. Lanham* (1919).
13. *Gunn Williams* (1923).
14. *Richard M. Kleesberg* (1931).
15. *John N. Garner* (1903).
16. *Robert E. Thomason* (1931).
17. *T. L. Blanton* (1916).
18. *Marvin Jones* (1917).

UTAH

1. Don B. Colton (1921).
2. F. C. Loofbourow (1930).

VERMONT

1. John E. Week (1931).
2. Ernest W. Gibson (1923).

VIRGINIA

1. *Schuyler O. Bland* (1918).
2. Menalcus Lankford (1929).
3. *A. J. Montague* (1913).
4. *Patrick H. Drewry* (1920).
5. *Thomas C. Burch* (1931).
6. *C. A. Woodrum* (1923).
7. *John W. Fishburne* (1931).
8. *Howard W. Smith* (1931).
9. *John W. Flannigan, Jr.* (1931).
10. *Joel W. Flood* (1932).

WASHINGTON

1. Ralph A. Horr (1931).
2. Lindley H. Hadley (1915).
3. Albert Johnson (1913).
4. John W. Summers (1919).
5. *Samuel B. Hill* (1923).

WEST VIRGINIA

1. Carl G. Bachmann (1925).
2. Frank L. Bowman (1925).
3. *Lynn S. Horner* (1931).
4. Robert L. Hogg (1930).
5. Hugh Ike Shott (1920).
6. *Joe L. Smith* (1929).

WISCONSIN

1. Thomas R. Amlle (1931).
2. Charles A. Kading (1927).
3. John M. Nelson (1921).
4. John C. Schafer (1923).
5. W. H. Stafford (1929).
6. *Michael K. Reilly* (1913).
7. *Gardner R. Withren* (1931).
8. *Gerald J. Boileau* (1931).
9. *G. J. Schneider* (1923).

PERSONNEL OF THE ADMINISTRATION

10. James A. Frear (1913).
11. Hubert H. Peavy (1923).

WYOMING

At large—Vincent Carter
(1929).

ALASKA

James Wickersham (1931).

HAWAII

V. S. K. Houston (1927).

PHILIPPINE ISLANDS

1. Pedro Guevara (1923).
2. Camillo Osias (1929).

PUERTO RICO

José L. Pesquera (1932).

PERSONNEL OF THE ADMINISTRATION

BY MILTON CONOVER

PROFESSOR, YALE UNIVERSITY

CABINET CHANGES

Ogden L. Mills.—Two cabinet changes occurred during 1932. In the Secretaryship of the Treasury, Andrew W. Mellon, who was made ambassador to England was replaced by Ogden L. Mills of New York on Feb. 12. He was promoted from the position of Undersecretary of the Treasury, the post that he had held since 1927--after serving six years in the House of Representatives.

Roy Dikerman Chapin.—In the Department of Commerce, Roy Dikerman Chapin, an automobile manufacturer of Michigan, was sworn in as Secretary of Commerce on Aug. 8, succeeding Robert Patterson Lamont of Illinois, who had held the position ever since the beginning of President Hoover's administration. Mr. Chapin had been chairman of the Highway Transport Committee of the Council of National Defense during the World War and was once president of the National Automobile Chamber of Commerce.

WHITE HOUSE SECRETARIAT

The White House Secretariat underwent one change during the presidential campaign year in that George Aubrey Hastings of New York, who had been administrative assistant to the President since June 1, 1931, was succeeded by French Strother on March 1, 1932. This change was not an entire innovation as Mr. Strother previously had served two years in that capacity for President Hoover.

DEPARTMENTAL CHANGES

Jay Pierrepont Moffat.—The personnel of the bureau chieftaincy in 1932 remained almost the same as re-

ported in *THE AMERICAN YEAR BOOK* for 1931. There were some changes there, however, along with some chieftain changes. In the Department of State, Jay Pierrepont Moffat became chief of the Division of Western European Affairs in place of Pierre de L. Boal.

Treasury Department.—Further realignments occurred in the Treasury Department. Undersecretary of the Treasury Mills, promoted to the Cabinet, was succeeded by Arthur A. Ballantine who was advanced from Assistant Secretary in Charge of Fiscal Offices. To the latter position, James H. Douglas was appointed. Deputy Comptroller F. G. Awalt became Acting Comptroller of the Currency in place of Comptroller J. W. Pole. To the Federal Farm Loan Bureau was appointed Vulasko Vaiden, replacing George R. Cooksey.

Navy Department.—The office of Assistant Secretary of the Navy for Air seems to have been abandoned with the retirement of David S. Ingalls.

Department of Agriculture.—The rapidly increasing work of the Extension Service resulted in the creation of the position of Business Manager in charge of Mark M. Thayer who was promoted after distinguished service as an administrative assistant in the Extension Service. The Plant Quarantine and Control Administration became simply the Bureau of Plant Quarantine with virtually no change in personnel.

The Department of Commerce witnessed a similar combination in that the Bureau of Navigation and the Steamboat Inspection Service were

III. THE NATIONAL GOVERNMENT

united. Both heads of these services were continued in the new service as assistant directors of the new Bureau of Navigation and Steamboat Inspection; Arthur J. Tyler and Dickerson N. Hoover respectively. In the Bureau of Standards, Lyman J. Briggs became Acting Director *vice* George K. Burgess.

Labor Department.—The Commissionership of Labor Statistics provided a vacancy which was reported as still unfilled in December 1932, while in the Assistant Commissionership of Immigration, Edward J. Shaughnessy succeeded George J. Harris. The Children's Bureau which had been something of a Congressional storm-center, apparently suffered the abolition of the Maternity and Infant Hygiene Division, governed by Blanche M. Haines. It realized, however, the development of a Delinquency Division directed by Alida C. Bowler, and a Social Statistics Division managed by Emma A. Winslow.

COMMISSIONS AND BUREAUS

Federal Trade Commission.—The Independent Offices and Establishments underwent some changes of personnel. The Federal Trade Commission operated with four members instead of five in the absence of former chairman C. W. Hunt. A vacancy in the United States Board of Tax Appeals was filled by former Congressman J. Russell Leech of Pennsylvania.

The United States Tariff Commission increased its membership by one member, two new members appearing in place of former Commissioner Lincoln Dixon of Indiana. The new members are Charles R. Crisp of Georgia and Ira M. Ornburn of Connecticut.

The Federal Power Commission became minus one member, Marcel Garsaud. Vacancies in the secretaryship and general counsel were filled by Joseph R. McCuen and Oswald Ryan respectively.

Miscellaneous.—Chairman George K. Burgess of the National Screw Thread Commission was replaced by Acting Chairman Lyman J. Briggs.

There remained still a vacancy in the chairmanship of the Federal Radio Commission. The United States Shipping Board Merchant Fleet Corporation experienced six changes among its seven trustees. The new Federal Home Loan Bank Board organized with former Congressman Franklin W. Fort, Chairman, and five others.

RECONSTRUCTION FINANCE CORPORATION

The great administrative personnel development of the year was the creation of the Reconstruction Finance Corporation under a board of seven directors including the Secretary of the Treasury. The Directors are Atlee Pomerene, Chairman; Charles A. Miller, President, and Harvey C. Couch, Gardner Cowles, Sr., Jesse H. Jones, Wilson McCarthy. The council, secretariat, and assistants bring their entire leading personnel in Washington to about forty.

UTILIZATION OF BUDGET RESEARCH

The 15 years of research into administrative personnel and organizational problems on the part of the Institute for Government Research at Brookings Institution, Washington, D. C., seems to have been utilized in 1932. After its years of preparation for the National Budget system in 1921, the Institute devoted attention to means of cutting the budget through improved personnel efficiency in cooperation with governmental agencies. In 1932 under the supervision of the Director of the Bureau of the Budget, the Federal Coordinating Service operated. It included the Permanent Conference on Printing, Federal Board of Hospitalization, and the Federal coordinating agencies such as the Federal Purchasing Board, Coordinator for Water Transport, Federal Real Estate Board, Federal Specifications Board, Federal Standard Stock Catalogue Board, Federal Statistics Board, Federal Traffic Board, Forest Protection Board, Interdepartmental Board of Contacts and Adjustments, Interdepartmental Board on Simplified Office Procedure, and the Interdepartmental Patents Board.

FEDERAL ADMINISTRATIVE ORGANIZATION

FEDERAL ADMINISTRATIVE ORGANIZATION

By WILLIAM M. SCHUYLER

ASSOCIATE EDITOR, THE AMERICAN YEAR BOOK

THE PRESIDENT AND VICE-PRESIDENT

President.—Herbert Hoover, of California (Republican). Sworn into office as President of the United States, March 4, 1929, in succession to Calvin Coolidge.

Vice-President.—Charles Curtis of Kansas (Republican), Inaugurated Vice-President of the United States, March 4, 1929.

Secretaries to the President.—Theodore G. Joslin (Massachusetts); Lawrence Richey (Pennsylvania); Walter Hughes Newton (Minnesota); French Strother (New York).

Presidential Vacancy.—By Act of Congress, in the case of vacancy occurring in the office of President through the death or removal of both the President and Vice-President, the Cabinet officers succeed to the Presidency in the order indicated in the arrangement of the following summary of the executive departments:

DEPARTMENT OF STATE

Secretary of State.—Henry Lewis Stimson.

Undersecretary of State.—William R. Castle, Jr.

Assistant Secretaries of State.—Wilbur J. Carr, Francis White, James Grafton Rogers, Harvey H. Bundy.

Foreign Service Personnel Board.—Wilbur J. Carr, Assistant Secretary of State, chairman; James Grafton Rogers, Assistant Secretary of State.

Legal Adviser.—Green H. Hackworth.

Economic Adviser.—Herbert Feis.

Chief Clerk and Administrative Assistant.—Clinton E. MacEachran.

Assistant to the Secretary of State.

—Harry A. McBride.

Chief of Divisions.—

Far Eastern Affairs.—Stanley K. Hornbeck.

Latin-American Affairs.—Edwin C. Wilson.

Western European Affairs.—Jay P. Moffat.

Near Eastern Affairs.—Wallace S. Murray.

Mexican Affairs.—Hershel V. Johnson.

Eastern European Affairs.—Robert F. Kelley.

Passport.—Ruth B. Shipley.

Current Information.—Michael J. McDermott.

Foreign Service Administration.—Herbert C. Hengstler.

International Conferences.—James Clement Dunn.

Treaty.—Charles M. Barnes.

Foreign Service Personnel.—Homer M. Byington.

Chiefs of Bureaus.—

Accounts.—William McNeir.

Communications and Records.—David A. Salmon.

Translating.—Emerson B. Christie.

Chief of Offices.—

Consular Commercial.—James J. Murphy, Jr.

Historical Advisor.—Hunter Miller.

Coordination and Review.—Margaret M. Hanna.

Visa.—Anderson Dana Hodgdon.

Foreign Service School.—James B. Stewart.

Disbursing Officer.—W. Ford Cramer.

DEPARTMENT OF THE TREASURY

Secretary of the Treasury.—Ogden L. Mills.

Charged with the management of the national finances. He prepares plans for the improvement of the revenue and support of the public credit; superintends collection of the moneys paid from and into the Treasury; controls construction of public buildings, coinage and printing of money, and the administration of the Coast Guard and the Public Health Service; ex-officio chairman of the Federal Reserve Board and of the Federal Farm Loan Board.

III. THE NATIONAL GOVERNMENT

Undersecretary of the Treasury.—Arthur A. Ballantine.

Assistant Secretary in Charge of Fiscal Offices.—James H. Douglas.

Assistant Secretary in Charge of Public Buildings, Public Health and Miscellaneous.—Ferry K. Heath.

Assistant Secretary in Charge of Customs, Coast Guard, Industrial Alcohol and Narcotics.—Seymour Lowman.

Assistant to the Secretary.—John Kieley.

Chief Clerk and Superintendent.—F. A. Birgfeld.

Commissioner of the Public Debt.—William S. Broughton.

Commissioner of Accounts and Deposits.—D. W. Bell.

Chief of Divisions.—

Appointments.—James E. Harper.
Bookkeeping and Warrants.—A. M. Smith.

Deposits.—E. D. Batchelder.

Loans and Currency.—Marvin Wesley.

Paper Custody.—M. A. Emerson.

Public Debt Accounts and Audit.—M. R. Loafman.

Secret Service.—W. H. Moran.

Supply.—L. C. Spangler.

Section of Financial and Economic Research.—W. R. Stark.

Disbursing Clerk.—J. L. Summers.
Government Actuary.—A. S. McLeod.

Comptroller of the Currency.—F. G. Awalt.

Has supervision of the national banks, their examination and reports; preparation and issue of national bank circulation; redemption and destruction of national bank notes. Ex-officio member of the Federal Reserve Board in which capacity he draws a salary of \$7,000 in addition to the salary of \$5,000 attached to the office proper of Comptroller of the Currency.

Treasurer of the United States.—W. O. Woods.

Charged with the receipts and disbursement of all public moneys deposited in the Treasury and Sub-Treasuries and in national bank depositaries.

Director of the Bureau of the Budget.—J. Clawson Roop.

Commissioner of the Bureau of Customs.—F. X. A. Eble.

Commissioner of the Bureau of Internal Revenue.—David Burnet.

Charged with general supervision of the collection of all internal revenue taxes, including the income tax, and the enforcement of internal revenue laws.

Director of the Bureau of the Mint.—Robert J. Grant.

Has general supervision of the mints and assay offices.

Commissioner of Industrial Alcohol.—J. M. Doran.

Commissioner of Narcotics.—H. J. Anslinger.

Register of the Treasury.—Edward E. Jones.

Federal Farm Loan Bureau.—Ogden L. Mills, Secretary of the Treasury, chairman ex-officio; Paul Bestor, Farm Loan Commissioner; John H. Guill, Lewis J. Pettijohn, Albert C. Williams, James B. Madison, Vulasko Vaiden.

Director of the Bureau of Engraving and Printing.—Alvin W. Hall.

Produces all the securities and similar work of the Government printed from steel plates.

Bureau of the Public Health Service.—Hugh S. Cumming, Surgeon General.

Charged with the framing and enforcement of regulations for the prevention of the introduction and spread of contagious disease; supervision of the quarantine service of the United States, and supervision of the marine hospitals.

Coast Guard.—Rear Admiral Harry G. Hamlet, Commandant.

Office of the Supervising Architect.—James A. Wetmore, Acting Supervising Architect.

Custom House.—Charles R. Lewis, Deputy Collector in Charge.

DEPARTMENT OF WAR

Secretary of War.—Patrick J. Hurley.

The Assistant Secretary of War.—Frederick H. Payne.

Assistant Secretary of War.—F. Trubee Davison.

Assistant Chief Clerk.—Frank M. Headley.

FEDERAL ADMINISTRATIVE ORGANIZATION

Executive Assistant to the Secretary of War.—Horace Thompson.

Clerk to the Secretary of War.—John W. Schott.

War Department General Staff.—General Douglas MacArthur, Chief of Staff; Major General George Van Horn Moseley, Deputy Chief of Staff.

Office of the Chief Cavalry.—Major General Guy V. Henry, Chief.

Chief of Field Artillery.—Major General Harry G. Bishop.

Chief of Coast Artillery.—Major General John W. Gulick.

Chief of Infantry.—Major General Stephen O. Fuqua.

Chief of Chaplains.—Julian E. Yates.

The Adjutant General.—Major General Charles H. Bridges.

The Inspector General.—Major General John F. Preston.

The Judge Advocate General.—Major General Blanton Winship.

The Quartermaster General.—Major General J. L. DeWitt.

Chief of Finance.—Major General Frederick W. Coleman.

Surgeon General.—Major General Robert U. Patterson.

Chief of Engineers.—Major General Lytle Brown.

Chief of Ordnance.—Major General Samuel Hof.

Chief Signal Officer.—Major General Irving J. Carr.

Chief of the Air Corps.—Major General B. D. Foulis.

Chief of the Bureau of Insular Affairs.—Brigadier General Francis LeJau Parker.

Philippine Government.—Theodore Roosevelt, Governor-General.

Puerto Rico Government.—James R. Beverley, Governor.

Chief of the Militia Bureau.—Major General George E. Leach.

Chief of the Chemical Warfare Service.—Major General Harry L. Gilchrist.

The Army War College.—Brigadier General George S. Simonds, Commandant.

Represents the United States in all legal matters.

Solicitor General.—Thomas Day Thacher.

Assistant to the Attorney General.—John Lord O'Brian.

Assistant Attorneys General.—Seth W. Richardson, Charles P. Sisson, G. Aaron Youngquist, Charles B. Rugg, Nugent Dodds, Roy St. Lewis, Charles D. Lawrence (Division of Customs).

Director of the Bureau of Investigation.—J. Edgar Hoover.

Executive Assistant to the Attorney General.—Ugo J. A. Carusi.

Administrative Assistant.—Charles E. Stewart.

General Agent and Chief Clerk.—John W. Gardner.

Assistant Chief Clerk and Appointment Clerk.—Charles B. Sornborger.

Chief of the Division of Mails and Files.—Arthur Robb.

Chief of the Division of Supplies and Printing.—Edward N. Bodholdt.

Librarian.—George Kearney.

Director of the Bureau of Prisons.—Sanford Bates.

Attorney in Charge of Pardons.—James A. Finch.

Disbursing Clerk.—Raymond D. Allison.

Director of the Bureau of Prohibition.—Amos W. W. Woodcock.

POST OFFICE DEPARTMENT

Postmaster General.—Walter F. Brown.

Secretary to the Postmaster General.—Kenneth C. Macpherson.

First Assistant Postmaster General.—Arch Coleman.

Second Assistant Postmaster General.—Warren Irving Glover.

Third Assistant Postmaster General.—Frederic A. Tilton.

Fourth Assistant Postmaster General.—John W. Philp.

Comptroller.—William E. Buffington.

Director of Parcel Post.—Jesse C. Harraman.

Solicitor.—Horace J. Donnelly.

Chief Post Office Inspector.—Thomas M. Milligan.

DEPARTMENT OF JUSTICE

Attorney General.—William DeWitt Mitchell.

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DEPARTMENT OF THE NAVY

Secretary of the Navy.—Charles Francis Adams.

The Assistant Secretary of the Navy.—Ernest Lee Jahncke.

Chief Clerk.—F. S. Curtis.

Private Secretary to the Secretary.—Alexander J. Doyle.

Chief of Appointment Division.—William D. Bergman.

Disbursing Clerk.—A. H. Hoiland.

Chief of Division of Records.—Charles T. Ogle.

Budget Officer.—Rear Admiral Ridley McLean.

Island Governments.

Guam.—Captain E. S. Root, Governor.
American Samoa.—Captain George B. Landenberger, Governor.

Virgin Islands.—Dr. Paul M. Pearson, Governor.

Chief of Naval Operations.—Admiral William V. Pratt.

Chief of the Bureau of Navigation.—Rear Admiral F. B. Upham.

Chief of the Bureau of Yards and Docks.—Rear Admiral A. L. Parsons.

Chief of the Bureau of Ordnance.—Rear Admiral E. B. Larimer.

Chief of the Bureau of Construction and Repair.—Rear Admiral Emory S. Land.

Chief of the Bureau of Engineering.—Rear Admiral Samuel M. Robinson.

Chief of the Bureau of Supplies and Accounts.—Rear Admiral Joseph Johnston Cheatham.

Chief of the Bureau of Medicine and Surgery.—Rear Admiral Charles E. Riggs.

Chief of the Bureau of Aeronautics.—Rear Admiral William A. Moffett.
Judge Advocate General.—Rear Admiral O. G. Murfin.

Naval Consulting Board.—Benjamin B. Thayer, Chairman.

Compensation Board.—Rear Admiral W. L. Capps (retired), senior member.

General Board.—Rear Admirals J. V. Chase, G. R. Marvell, F. H. Schofield, A. E. Watson, H. L. Brinser, Lieutenant Commander J. W. Dugger, Jr., Captain E. S. Jackson.

President of the Board of Medical Examiners.—Rear Admiral Charles P. Knudleberger.

President of the Naval Examining Board.—Captain Hilary H. Royall.

President of the Naval Retiring Board.—Rear Admiral Charles P. Knudleberger.

Naval Dispensary.—Captain Edgar L. Woods.

Navy Yard and Station, Washington, D. C.—Rear Admiral H. V. Butler, Commandant.

Naval Medical School.—Captain William H. Bell.

Navy Hospital.—Captain Percival S. Rossiter.

Attendance on Officers.—Lieut. Commander Leo C. Thyson.

President of the Board for Examination of Medical Officers.—Captain William H. Bell.

President of the Board of Examination of Dental Officers.—Captain William H. Bell.

Headquarters Marine Corps.—Major General Ben H. Fuller, Commandant; Brigadier General Rufus H. Lane, Adjutant and Inspector; Brigadier General Hugh Matthews, Quartermaster; Brigadier General George Richards, Paymaster.

Marine Barracks.—Colonel Charles B. Taylor, commanding.

DEPARTMENT OF THE INTERIOR

Secretary of the Interior.—Ray Lyman Wilbur.

Charged with pensions, public lands, Indian affairs, geological surveys, reclamation of arid lands, and mines.

First Assistant Secretary.—Joseph M. Dixon.

Assistant Secretary.—John H. Edwards.

Administrative Assistant.—Ebert K. Burlew.

Chief Clerk.—W. Bertrand Acker.

Solicitor.—Edward C. Finney.

Board of Appeals.—John P. McDowell, John H. Thomas, Alvah W. Patterson.

Supervisor of Classification.—John Harvey.

Commissioner of the General Land Office.—Charles C. Moore.

Commissioner of the Bureau of Indian Affairs.—Charles J. Rhoads.

Commissioner of the Office of Education.—William John Cooper.

FEDERAL ADMINISTRATIVE ORGANIZATION

Director of the Geological Survey.
—W. C. Mendenhall.

Commissioner of the Bureau of Reclamation.—Elwood Mead.

Director of the National Park Service.—Horace M. Albright.

Board of Indian Commissioners.—Samuel A. Eliot, Chairman.

Territorial Officials.—
Alaska.—George A. Parks, Governor.
Hawaii.—Lawrence M. Judd, Governor.

The Alaska Railroad.—Otto H. Ohlson, General Manager.

DEPARTMENT OF AGRICULTURE

Secretary of Agriculture.—Arthur Mastic Hyde.

Assistant Secretary.—R. W. Dunlap.

Assistant to the Secretary.—E. N. Meador.

Director of Scientific Work.—A. F. Woods.

Director of Regulatory Work.—Walter G. Campbell.

Director of Extension Work.—C. W. Warburton.

Director of Personnel and Business Administration.—W. W. Stockberger.

Director of Information.—Milton S. Eisenhower.

Solicitor.—Elton L. Marshall.

Librarian.—Claribel R. Barnett.

Office of Experiment Stations.—James T. Jardine.

Weather Bureau.—Charles F. Marvin, Chief.

Bureau of Animal Industry.—John B. Mohler, Chief.

Bureau of Dairy Industry.—O. E. Reed, Chief.

Bureau of Plant Industry.—William A. Taylor, Chief.

Forest Service.—R. Y. Stuart, Forester and Chief.

Bureau of Chemistry and Soils.—Henry G. Knight, Chief.

Bureau of Entomology.—C. L. Marlatt, Chief.

Bureau of Biological Survey.—Paul G. Redington, Chief.

Bureau of Public Roads.—Thomas H. MacDonald, Chief.

Bureau of Agricultural Economics.—Nils A. Olsen.

Bureau of Home Economics.—Louise Stanley, Chief.

Bureau of Plant Quarantine.—Lee A. Strong, Chief.

Grain Futures Administration.—J. W. T. Duvel, Chief.

Food and Drug Administration.—W. G. Campbell, in charge.

DEPARTMENT OF COMMERCE

Secretary of Commerce.—Roy D. Chapin.

Assistant Secretary.—Julius Klein.

Assistant Secretary for Aeronautics.—Clarence M. Young.

Administrative Assistant to the Secretary.—Malcolm Kerlin.

Solicitor.—Ephraim F. Morgan.

Chief Clerk and Superintendent.—E. W. Libbey.

Chiefs of Divisions.—
Disbursing Clerk.—Charles E. Molster.

Chiefs of Divisions.—
Appointments.—Edw. J. Gardner.

Publications.—Thomas F. McKeon.

Purchases and Sales.—Walter S. Erwin.

Librarian.—Charlotte L. Carmody.

Director of Air Regulation.—Gilbert G. Budwig.

Director of the Bureau of Census.—William M. Steuart.

Director of the Bureau of Foreign and Domestic Commerce.—Frederick M. Feiker.

Director of the Bureau of Standards.—Lyman J. Briggs.

Commissioner of the Bureau of Fisheries.—Henry O. Malley.

Commissioner of the Bureau of Lighthouses.—George R. Putnam.

Director of the Coast and Geodetic Survey.—R. S. Patton.

Bureau of Navigation and Steamboat Inspection.—Arthur J. Tyrer, Dickerson N. Hoover.

Commissioner of the Patent Office.—Thomas E. Robertson.

Director of the Bureau of Mines.—Scott Turner.

DEPARTMENT OF LABOR

Secretary of Labor.—William N. Doak.

Charged with the duty of fostering, promoting and developing the welfare of the wage earners of the United States and also working towards a solution of the labor problems.

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The Assistant Secretary.—Robert Carl White.

Second Assistant Secretary.—W. W. Husband.

Assistants to the Secretary.—Peter F. Snyder and W. N. Smelser.

Solicitor.—Theodore G. Risley.

Chief Clerk.—Samuel J. Gompers.

Disbursing Clerk.—John R. Demorest.

Director of Conciliation.—Hugh L. Kerwin.

Commissioner General of Immigration.—Harry E. Hull.

Chief of the Children's Bureau.—Grace Abbott.

Commissioner of Naturalization.—Raymond F. Crist.

Director of the Women's Bureau.—Mary Anderson.

United States Employment Service.—John R. Alpine, Supervising Director.

United States Housing Corporation.—Theodore J. Risley, President.

MISCELLANEOUS EXECUTIVE SERVICES

Civil Service Commission.—Thomas E. Campbell, president; George R. Wales, Jessie Dell.

Interstate Commerce Commission.—Claude R. Porter, chairman; Baltasar H. Meyer, Clyde B. Aitchison, Joseph B. Eastman, Ernest I. Lewis, Frank McManamy, Ezra Brainerd, Jr., Patrick J. Farrell, William E. Lee, Hugh M. Tate, Charles D. Mahaffie.

United States Bureau of Efficiency.—Herbert D. Brown, Chief.

United States Employees' Compensation Commission.—Bessie Parker Brueggeman, chairman, Harry Bassett, John M. Morin.

General Accounting Office.—J. R. McCarl, Comptroller General of the United States.

United States Railroad Administration.—Ogden L. Mills, Secretary of the Treasury, Director General.

Federal Reserve Board.—Ogden L. Mills, Chairman; F. G. Awalt, Comptroller of the Treasury; Eugene Meyer, Governor; Adolph C. Miller, Charles S. Hamlin, Wayland W. Magee, George R. James.

Federal Trade Commission.—Wil-

liam E. Humphrey, Chairman; Garland S. Ferguson, Jr., Charles H. March, Edgar A. McCulloch, Otis B. Johnson, Secretary.

United States Tariff Commission.—Robert L. O'Brien, Chairman; Thomas Walker Page, Vice-Chairman; John Lee Coulter, Edgar B. Brossard, Ira M. Ornburn, Charles R. Crisp, Sidney Morgan, Secretary.

United States Board of Tax Appeals.—Logan Morris, Chairman.

Federal Farm Board.—James C. Stone, Chairman.

Federal Power Commission.—George O. Smith, Chairman, Frank R. McNinch, Ralph B. Williamson, Claude L. Draper.

Federal Oil Conservation Board.—The Secretary of the Interior, Chairman; the Secretary of War, the Secretary of the Navy, the Secretary of Commerce.

Veterans' Administration.—Brigadier General Frank T. Hines, Administrator; George E. Ijams, Director of the United States Veterans' Bureau; Edward W. Morgan, Acting Commissioner and Deputy Commissioner of the Bureau of Pensions; Colonel C. W. Wadsworth, Director of the Bureau of National Homes.

Federal Board for Vocational Education.—J. C. Wright, Director.

United States Board of Mediation.—Samuel E. Winslow, Chairman.

United States Shipping Board.—T. V. O'Connor, Chairman.

National Advisory Committee for Aeronautics.—Joseph S. Ames, Chairman.

Alien Property Custodian.—Howard Southerland.

Board of Surveys and Maps of the Federal Government.—J. G. Staack, Chairman.

The Commission of Fine Arts.—Charles Moore, Chairman.

National Memorial Commission.—Ferdinand D. Lee, Chairman.

Smithsonian Institution.—

Established 1846 under the terms of the will of James Smithson for the "increase and diffusion of knowledge among men." The former aim is accomplished by the promoting of original, scientific research, and the

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latter by publications and lectures. The affairs of the Institution are managed by a Board of Regents which cooperates with the Government and with National scientific bodies. Under the direction of the Institution are the National Museum, charged with preserving and utilizing objects of art and ethnological, geological and mineralogical collections belonging to the United States; Bureau of American Ethnology, National Gallery of Art, Freer Gallery of Art, National Zoological Park, Astrophysical Observatory, and the Regional Bureau for the United States International Catalogue of Scientific Literatures.

Secretary.—C. G. Abbott.

National Academy of Sciences.—W. W. Campbell, President; Frederick E. Wright, Home Secretary; R. A. Millikan, Foreign Secretary; W. H. Howell, Chairman of the National Research Council.

Pan-American Union.—L. S. Rowe, Director General.

United States Geographic Board.—Frank Bond, Chairman.

American National Red Cross.—John Barton Payne, Chairman.

National Commission on Law Observance and Enforcement.—George W. Wickersham, Chairman.

Reconstruction Finance Corporation.—Atlee Pomerene, Chairman.

FEDERAL CIVIL SERVICE

By CLINTON ROGERS WOODRUFF

HONORARY SECRETARY, NATIONAL MUNICIPAL LEAGUE

CHANGES IN PERSONNEL ADMINISTRATION

Operation of Economy Law.—The year 1932 was marked by changes in Federal personnel administration unusual in number and importance. A part of the consolidation of personnel activities recommended by the U. S. Civil Service Commission in its last annual report was accomplished by a provision of the Economy Law of June 30, 1932, which transferred to the Commission the duties and functions of the Personnel Classification Board. The law gave to the President authority to take further steps toward combining Federal personnel activities under one administration.

Executive and Legislative Regulation.—Through amendments of the civil-service rules by executive orders, important extensions of the classified service were made. The administration of the Commission's field offices was improved by changes in personnel and by the extension of the authority of district managers. The Economy Law of 1932 made drastic changes affecting Federal

civilian personnel, some of which are regarded as unduly severe. Regulations were promulgated under authority of Executive order which reduced the number of original appointments by providing for the transfer of surplus employees and later for the reemployment of worthy employees dismissed because of reduction of force or furloughed for extended periods.

Civil Service Examinations.—A lessening of the number of voluntary separations, due to economic conditions, and the observance of the President's injunction of economy reduced the number of examinations held during the year by 44 per cent in comparison with the number held in the preceding year, although the total number of persons examined was greater in the fiscal year 1932 than in 1931. This increase in the number of applicants was to be expected at a time of such widespread unemployment. During the year ended June 30, 1932, the Commission announced 2,441 open competitive examinations, as compared with 4,570 in the preceding fiscal year. Not-

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withstanding this great reduction, the number of persons examined for original appointment was 250,377 in 1932 as against 241,304 in 1931. The decrease in examination work was in the reduction in the number of examinations prepared. Non-competitive examinations have come to be an important part of the work due to the increase in the number of transfers of employees from one branch to another. The Commission must be satisfied that the employee is qualified for the position to which it is proposed to transfer him.

Commission Staff.—At the end of the fiscal year 1932 the Commission had 599 officers and employees in a permanent status, as compared with 622 at the end of the fiscal year 1931.

PROVISIONS OF THE ECONOMY LAW

Salary Cuts by Furlough.—The Economy Law, except in certain specified particulars, applies to administration for the year ending June 30, 1933 only. A furlough of one month is provided for all employees who receive compensation amounting to more than \$1,000 a year, with the exception that in some cases where a furlough is not practicable the employees must lose one month's pay. Rural mail carriers are an example of the employees to which it is not practicable to apply the furlough. Some others are specified. In the case of *per diem* employees, it is provided that five days shall constitute a week's work, with ten-elevenths of the pay formerly received. The money saved by the one month's furlough, or by the loss of one month's salary, or by the loss of one-eleventh of the pay is impounded and goes back to the Treasury. It cannot be spent by the Departments and independent offices.

Leaves of Absence.—No vacation leave with pay is allowed during the year. Sick leave with pay is allowed under regulations to be promulgated by the President. There is a permanent provision that, with certain specified exceptions, "hereafter no civilian officer or employee of the Government who receives annual

leave with pay shall be granted annual leave of absence with pay in excess of 15 days in any one year, excluding Sundays and legal holidays: Provided, That the part unused in any year may be cumulative for any succeeding year."

Promotions and Vacancies.—Automatic increases in salary, such as those provided by previous law for certain classes of postal employees, are stopped for the fiscal year. No administrative promotions are allowed in any branch except upon written authority of the President to fill a vacancy. No vacancies can be filled except in absolutely essential positions. The authority of the President in writing is required for an appointment to fill any position vacant during the year. An exception is made in the case of temporary appointments to meet emergencies. Money saved by the vacating of positions goes back to the Treasury and cannot be used by the offices affected unless authorized by the President.

Retirements.—All employees who had reached or passed the usual retirement age were retired at the close of business on June 30, 1932, and all who later reach the usual retirement age will automatically be retired. Previous law had authorized certain extensions, but these were stopped under the Economy Law. An exception is the authority given to the President to authorize extensions when they are clearly in the public interest.

Five-day Week Plan.—One of the first steps of the President after this law was enacted was to refer it to the Council of Personnel Administration, of which the president of the Civil Service Commission is chairman, for advice as to a more or less uniform employment procedure to meet the furlough provision of the new law. Careful consideration was given by the Council of Personnel Administration to the feasibility of instituting the five-day week. It was found, however, that no definite recommendation on that point could be made due to varying conditions in the different establishments. The Council declared in favor of the five-

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day week as a principle in and out of Government as a means of distributing employment, but suggested that the question of the application of the principle be left to the heads of the several departments and independent offices. In branches in which employees are on a *per diem* basis the five-day week has been adopted as the law provides, but in only a few instances has it been applied in an executive establishment where employment is on an annual basis. The Department of Labor, the Employees' Compensation Commission, and the National Advisory Committee for Aeronautics have adopted the five-day week plan.

MARITAL STATUS

The marital status provisions of the Law deserve special comment. The Commission holds that the mere transfer of an employee from one position to another is not an appointment within the meaning of the economy law and that the law does not apply to such a change of position. The provisions do apply, however, to reinstatements as well as to original appointments. It is reported that in a number of instances married employees have separated in an attempt to evade the operation of the law. The Commission holds that the separation of husband and wife for this reason does not give them immunity; that such separation will not remove the restrictions imposed by the law. The Commission regards the marital status provision of the economy law as unwise. It is believed that merit alone should be the yardstick of measurement for employment in the Federal Service. The law is the mandate, however, and it will, of course, be rigidly enforced.

CHANGES IN CIVIL SERVICE RULES

Classification.—To meet new conditions or to make more adequate provision for existing needs, the President, upon recommendation of the Commission, issued a number of orders during the fiscal year amending the civil service rules. One affecting the classified service as a

whole was an order of Jan. 18, 1932, amending Section 1 of Rule VI to allow the addition of ten points to be earned examination ratings of disabled veterans over 55 years of age, or to their wives under certain conditions. A change for the purpose of relieving the apportionment of charges of appointments that cannot be made according to state residence was made by an executive order of Dec. 7, 1931, which amended Section 2 of Rule VII. Effects of this order were to exclude from the apportionment figures the appointments of persons covered into the classified departmental service by executive order or otherwise, as well as those exempted from the quota provision in certification, which latter, in addition to veterans, include mechanical trades and allied positions incumbents of which are retireable at not over 65 years of age.

Exempted Positions.—A number of amendments were made affecting positions excepted from examination under Schedule A of the rules. Their combined effect was to lessen the number of excepted positions and therefore to increase the number in the competitive classified service. Among the positions thus changed as to status are attorney in the Veterans' Administration; mounted inspector in the Customs Service on the Mexican border, and superintendent or officer in charge of a National park or reservation. The modification of Subdivision 6 of Schedule A by an executive order of Feb. 2, 1932, affecting excepted positions in the Department of Justice, was a gratifying result of long-continued effort. The exception previously permitted appointments without examination of persons whose positions were "deemed by the Attorney General to be legal or confidential," but now it definitely lists the positions excluded from the classified service and greatly reduces the number of exemptions.

An especially important change was made by the amendment on March 10, 1932, which change reduced the number of excepted employees by including within the

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classified service all positions in the Bureau of Foreign Domestic Commerce in continental United States, Alaska, Hawaii, and Puerto Rico heretofore excepted from competitive examination, other than the director and assistant directors of the Bureau. Commercial attaches, assistant commercial attaches, trade commissioners, and assistant trade commissioners remain in the excepted class, but after three years of service abroad they may be transferred or reinstated, upon approval of the Commission, to any position under the Bureau for which their qualifications fit them, but without change thereby in their excepted status as Schedule B employees.

NUMBER OF CIVIL SERVICE EMPLOYEES

Data compiled by the Commission show that on June 30, 1932, there were 578,231 employees in the entire executive civil service, as against 616,837 at the end of the preceding fiscal year. These figures appear to show a net decrease of 38,606. The fact is that 35,710 of the apparent reduction is simply the elimination from the figures of certain employees connected with the Postal Service. They are largely clerks at third-class post offices, who really are employees of the postmasters and are not recorded by the Department. They also include star route, mail messenger, and other contractors who are omitted from the figures because they are not actual postal employees. Eliminating these, the executive civil service was decreased by 2,896 employees during the year. This decrease was due principally to the policy of economy required by the President. It will be observed that it took place before the Economy Law of June 30, 1932 became effective.

EXAMINATIONS AND APPOINTMENTS

At the end of the fiscal year, there were 467,161 positions subject to competitive examination under the civil-service act and rules, a decrease of 889 in comparison with the num-

ber at the end of the preceding fiscal year. On June 30, 1931, the competitive classified service represented 75 per cent of the entire personnel. As the positions connected with the Post Office Department, which are eliminated from the figures, are wholly in the unclassified service, the competitive classified positions are now 80 per cent of the total of 578,231 in the executive civil service on June 30, 1932.

The total number of persons examined during the fiscal year for classified and unclassified positions was 279,318 as compared with 266,286 in 1931, an increase of 13,032. The number of original appointments to classified positions in the year ended June 30, 1932, was 21,449, as compared with 38,461 in 1931, a reduction of 17,012. The total number of appointments to all positions, classified and unclassified, for which the Commission holds examinations, was 27,615 in the fiscal year ended June 30, 1932, as compared with 46,441 in 1931.

Of the 21,449 original appointments made during the last fiscal year, 6,460 were appointments of those entitled to veteran preference. This number is 30.11 per cent of the entire number of appointments made as compared with 26.16 per cent in the preceding fiscal year. In the last fiscal year 1,561 of the appointments were of veterans entitled to the 10-point preference. This number is 7.2 per cent of the entire number of appointments made, as against 5.6 per cent in the preceding fiscal year.

FINGERPRINTS

Effective July 1, 1932, the work of classifying fingerprints made in connection with civil-service procedure and of searching the records for identification was turned over to the Identification Division of the Bureau of Investigation of the Department of Justice. This consolidation is in line with the policy of combining related activities in different branches of the service with economy in view. The Commission will continue to supervise the taking of fingerprints in connection with appointments, and

in some cases with examinations. The Commission transferred to the Department of Justice its entire file of 145,543 classified fingerprint charts.

MISASSIGNMENTS

Increased attention was given during the year to misassignments, many of which have been adjusted, and a definite program has been established for further adjustment. Assignments of employees to classes and grades of work not warranted by the evidence of qualifications before the Commission are prohibited by the civil-service rules. Under the law and rules, the Commission must decide from the evidence of qualifications it secures whether or not an employee may be changed to a status different from that permitted by his entrance examination. New assignments without the authority of the Commission are violations of the principles of the merit system; they throw open the door to favoritism; they constitute a fraud upon the public by lessening the opportunity of citizens to compete for appointments. It is the policy, of course, to encourage the filling of vacancies by promotions and transfers within the service. The Commission must be satisfied, however, that the person proposed for promotion or transfer is qualified for the duties of the new assignment. Unquestionably many misassignments are made without deliberate intent to evade the rules, and some of the departments and independent offices cooperate willingly with the Commission in correcting mistakes of this character. Other branches have not always been cooperative, and the Commission has found it necessary to demand adjustments.

EFFECTS OF THE DEPRESSION ON PUBLIC PERSONNEL WORK

Filling Vacancies.—The effects of the economic depression have made themselves felt quite acutely in the objectives and procedure of public personnel agencies in the United States and Canada. As yet a few favored jurisdictions have hardly felt the pinch. In general, however,

those engaged in public personnel work were keenly aware that there is a depression and that the effects on their own activities are marked. The early effects were to increase markedly the volume of recruiting work, though, even as early as 1931, the number of vacant positions to be filled decreased to some extent. In all parts of the United States and Canada the number of applications grew by leaps and bounds when tests to fill vacant positions were announced which increased the total amount of work. Later the movement to avoid the filling of vacant positions through bringing outsiders into the service has grown apace, with the result that in many jurisdictions examining work has come to a standstill and in most others its volume is becoming much less. The indications are that recruiting work for the public service will be reduced more and more and that, for a period of at least two years, most public personnel agencies will be concerned more with reducing the size of the personnel in their respective jurisdictions and in shifting officers and employees about in the service to prevent their being laid off than in bringing new persons into the service.

Pay Reductions.—Numerous reductions in the pay of public officers and employees in all parts of the country have been made and more are in prospect. Some of the public jurisdictions in which pay cuts have been or are being put into effect are the Federal services of the United States and of Canada, the States of New Jersey, Ohio and California, and the city services of New York, Philadelphia, Detroit, Cleveland, Buffalo, Cincinnati, Chicago, St. Louis, Los Angeles, and Seattle. In some cases the pay reductions have been small, amounting to three, five, or ten per cent; in others, such as Chicago and Detroit, they have amounted to twenty and twenty-five per cent. In some places an appearance of maintaining existing pay levels through enforced furloughs without pay has been insisted upon; this is true, for example, of the Federal service of the United States and Canada. In

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these places, however, the reductions in the income of public officers and employees has been actual. In the main, the device of reduced rates of pay has been chosen, with the cuts higher as a rule in the upper brackets than in the lower. In few public personnel jurisdictions in the United States has the reduction of the pay of public officers and employees been as great as in most commercial organizations.

NATIONAL CIVIL SERVICE REFORM LEAGUE

Resolution At Annual Meeting.—

The National Civil Service Reform League held its fiftieth annual meeting Feb. 25, 1932, at the City Club, New York City. The resolutions commended President Hoover for urging Congress to enact suitable legislation to consolidate under the U. S. Civil Service Commission the various Federal agencies concerned in the administration of laws relating to the civil personnel of the Federal Government service. They pointed out that personnel functions are at present divided among five separate Federal agencies—U. S. Civil Service Commission, Personnel Classification Board, Employees' Compensation Commission, Bureau of Efficiency and the branch of the Veterans' Administration which has charge of the retirement of civil employees. Centralization of authority over personnel administration under the jurisdiction of the Civil Service Commission would permit better coordination of such personnel activities and would prove a definite step towards economy in governmental administration. The League further commended the President, the Department of Justice and the U. S. Civil Service Commission for the repeal of this executive order and the substitution of a limited number of positions specifically excepted from competitive tests.

Service Cooperation.—Creation by executive order by the President of the Federal Council of Personnel Administration should, in the opinion of the League facilitate systematic cooperation between the U. S. Civil

Service Commission and the various departments of the Federal Government, and should permit of scientific coordination of the needs of the various government agencies with respect to personnel. The new plan, the League maintained, should be the means of making available to the Federal Government the better practices in personnel administration in private industry and of making more elastic the present inflexible system of transfers and promotions, and inevitably will open to the employees better opportunities for careers in the government service.

Personnel Control.—With over a billion dollars expended annually by the Federal Government for personnel service; with an army of 730,000 Federal employes, and with another army of almost 2,500,000 employes in states and cities throughout the country, necessitating an annual budget of over \$3,000,000,000, the problem of a scientific and effective plan of personnel control is one in which every taxpayer and citizen must be directly concerned. One out of every 119 persons in the United States works for the Federal Government, and one out of every 40 persons is employed by some governmental agency—Federal, state or city. More than half of this tremendous army of 3,000,000 civil employes, the League pointed out, are still appointed without regard to merit and demonstrated qualifications for their positions. With the demands upon the government to undertake more functions, the demand for trained personnel has become more imperative than ever. It recommended the adoption of sound personnel systems based on selection for merit and fitness as a practical remedy for extravagance in government administration. The scandalous conditions disclosed in investigations in New York, Chicago and elsewhere have indicated the great need for strengthening the entire civil service reform movement. Administration of public affairs on a true business basis is one of the greatest needs in America today. It is only through a rigid application of the merit system that the vast

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sums appropriated throughout the country for personnel services can be effectively and economically expended.

Politics in Post Office Department.

—The report of the Council of the League, presented at the meeting, called attention to the "plain challenge" made publicly by high officials of the Post Office Department, in "direct defiance of the spirit of the competitive principle," when they suggested plainly to postmasters that they take active part in political campaigns in behalf of the administration. The report stated: "We have found after investigation that only those politically favored have received appointment; that candidates have often been intimidated or discouraged from competing in the examinations. The political character of the selections is generally accomplished by the Post Office Department. It sends the names of the three highest persons on the list to the members of the Congress from the district in which the vacancy exists. Where the Congressman is not of the party in control the local political committee is usually accorded this privilege. This practice has discredited the whole system of examination as it is applied to these positions. The real purpose of the Department is to help the political party in power. In most cases the postmasters are supernumeraries, for it is fairly common knowledge that in the larger offices the postmaster spends the public time and money in actively engaging in political intrigue, while the real work is done by his assistants and subordinates who are in the competitive service. Unfortunately, with a politically-minded postmaster the subordinates are often importuned to help the party machine. The late order of the Post Office Department (issued in January, 1930, and repeated in October) was a plain invitation to employes of the Department to get busy and help in the elections."

Department of Justice.—In the summer of 1929, the National Civil Service Reform League carried on an extended correspondence with the

Attorney General's office regarding the advisability of rescinding the executive order originally issued in 1903 which excepted from competitive examination positions deemed by the Attorney General to be legal or confidential in character. The League claimed that the order had been given a latitude not originally intended and had been invoked far too generously in recent years, so that on Sept. 30, 1929, 372 positions in the departmental service at Washington and 1,033 positions in the field service had been filled in pursuance of the order. At that time, however, the First Assistant Attorney General informed the League that the Department considered "it would not be in the best interests of the service" to make any change in the rule. On Feb. 16, 1932, Attorney General Mitchell wrote the President of the League: "Referring to correspondence had with you in 1929, relative to the desire of the League to have eliminated or modified the executive order excepting from competitive examination 'upon an undeterminate basis,' positions in the Department of Justice deemed by the Attorney General to be of a confidential character, I beg leave to say that after very careful consideration the Department and the Civil Service Commission have agreed upon an amendment of the civil service rule which eliminates therefrom the feature to which the League objected." This amendment was embodied in an executive order signed by the President Feb. 2, 1932.

CIVIL SERVICE ASSEMBLY CONVENTION

Unemployment Problems.—The 25th Annual Convention of the Civil Service Assembly was held in Baltimore, Sept. 21-24. President Charles P. Messick of New Jersey presiding. In addition to the usual reports and routine business, there was a discussion of unemployment problems. What part, if any, should the public personnel agency take in dealing with unemployment problems? To what extent, if any, should the laws, rules, and regulations relating to pub-

III. THE NATIONAL GOVERNMENT

lie personnel work be modified? Should preference in employment and retention in the public service be based in whole or in part on marital status, on the number of dependents supported, on need, and similar factors? Should the work-day and week in the public service be reduced to provide employment for more persons? Should the plan of "staggered employment" be adopted? Should hard labor, where possible, be substituted for machine labor to provide employment?

Legal Questions.—Among the legal questions discussed were these: Is it desirable and feasible for the Civil Service Assembly to sponsor the publication of a book dealing with the legal interpretation of public personnel legislation? If so, shall the point of view be that of the public personnel administrator or that of the judge and lawyer? Should approval be given by the Assembly to the personnel section of the so-called model council-manager charter of the National Municipal League and to the draft of the personnel section of a state constitution proposed by some Assembly members and others?

Service Ratings.—Under the head of service ratings there was discussed the questions of what technical and administrative problems have arisen from the use, for administrative purposes, of the Probst service rating system. What must be done to develop a service rating system free from these technical and administrative defects? By whom is the additional experimental work to be done, and when? What are the ethical and legal arguments for and

against copyrighting any service rating system? What advice should be given by the secretariat of the Assembly to members and others who ask about the introduction of some service rating system?

PREFERENCE FOR SPANISH WAR VETERANS LIBERALIZED

On Jan. 10, 1932, the President signed an order which amended the civil service rules in favor of disabled veterans of the Spanish-American War. Under the new order, veterans who are more than 55 years of age and, because of disability, are entitled to pension, compensation, or disability allowance under existing law and are allowed the addition of ten points to their earned ratings in examinations for the Federal civil service. Under the order previously in effect it was necessary for the applicant to give satisfactory evidence that his disability was service-connected. A committee representing the United Spanish War Veterans called upon the President's Advisory Committee on Veterans' Preference and pointed out that the order as it stood prevented the allowance of the ten-point credit to disable Spanish War Veterans because of the lack of medical and physical records maintained during the Spanish-American War, and the lapse of time since its conclusion made it difficult or impossible to establish the service connection of existing disabilities. The Advisory Committee recommended that the change be made. All veterans who are allowed a ten-point preference are placed at the lead of the appropriate register in competition only with other veteran eligibles.

PERSONNEL OF THE JUDICIARY

BY WILLIAM M. SCHUYLER

ASSOCIATE EDITOR, THE AMERICAN YEAR BOOK

SUPREME COURT OF THE UNITED STATES

Charles Evans Hughes (New York),
Chief Justice of the United States,
appointed 1930.

Willis Van Devanter (Wyoming),
appointed 1910.

James Clark McReynolds (Tennessee),
appointed 1914.

PERSONNEL OF THE JUDICIARY

Louis Dembitz Brandeis (Massachusetts), appointed 1916.

George Sutherland (Utah), appointed 1922.

Pierce Butler (Minnesota), appointed 1925.

Harlan F. Stone (New York), appointed 1925.

Owen J. Roberts (Pennsylvania), appointed 1930.

Benjamin N. Cardozo (New York), appointed 1932.

Officers of the Supreme Court:

Clerk.—Charles Elmore Cropley.

Deputy Clerks.—Reginald C. Dilli, Hugh W. Barr.

Marshal.—Frank Key Green.

Reporter.—Ernest Knaebel.

CIRCUIT COURT OF APPEALS OF THE UNITED STATES

First Circuit.—Vacancy.

George Hutchins Bingham (New Hampshire), Scott Wilson (Maine). James M. Morton, Jr. (Massachusetts).

Second Circuit.—Mr. Justice Stone; Martin T. Manton (New York), Learned Hand (New York), Thomas W. Swan (Connecticut), Augustus N. Hand (New York), Harrie Brigham Chase (Vermont), Julian W. Mack (New York).

Third Circuit.—Mr. Justice Roberts; Joseph Buffington (Pennsylvania), J. Warren Davis (New Jersey), Victor B. Woolley (Delaware), J. Whitaker Thompson (Pennsylvania).

Fourth Circuit.—Mr. Chief Justice Hughes; John J. Parker (North Carolina), Elliott Northcot (West Virginia), Morris A. Soper (Maryland).

Fifth Circuit.—Mr. Justice Brandeis; Nathan P. Bryan (Florida), Rufus E. Foster (Louisiana), Samuel H. Sibley (Georgia), Joseph C. Hutcheson, Jr. (Texas).

Sixth Circuit.—Mr. Justice McReynolds; Charles H. Moorman (Kentucky), Xenophon Hicks (Tennessee), Smith Hickenlooper (Ohio), Julian W. Mack (New York), Charles C. Simons (Michigan).

Seventh Circuit.—Mr. Justice Van Devanter; Samuel Alschuler (Illinois),

Evan A. Evans (Wisconsin), William M. Sparks (Indiana).

Eighth Circuit.—Mr. Justice Butler; Kimbrough Stone (Missouri), William S. Kenyon (Iowa), John B. Sanborn (Minnesota), Archibald K. Gardner (South Dakota).

Ninth Circuit.—Mr. Justice Sutherland; Curtis D. Wilbur (California), William H. Sawtelle, (Arizona).

Tenth Circuit.—Mr. Justice Van Devanter; Robert E. Lewis (Colorado), John H. Cotterall (Oklahoma), Orie L. Phillips (New Mexico), George T. McDermitt (Kansas).

UNITED STATES COURT OF CUSTOMS AND PATENT APPEALS

William J. Graham (Illinois), presiding judge, appointed 1924.

Oscar E. Bland (Indiana), appointed 1923.

Charles Sherrod Hatfield (Ohio), appointed 1923.

Finis James Garrett (Tennessee), appointed 1929.

Irvine L. Lenroot (Wisconsin), appointed 1929.

COURT OF APPEALS OF THE DISTRICT OF COLUMBIA

George E. Martin, Chief Justice.

Charles H. Robb.

Josiah A. Van Orsdel.

William Hitz.

D. Lawrence Groner.

COURT OF CLAIMS OF THE UNITED STATES

Fenton Whitlock Booth (Illinois), Chief Justice, appointed 1928.

William Raymond Green (Iowa), appointed 1928.

Benjamin H. Littleton (Tennessee), appointed 1929.

Thomas S. Williams (Illinois), appointed 1929.

Richard Smith Whaley (South Carolina), appointed 1930.

SUPREME COURT OF THE DISTRICT OF COLUMBIA

Alfred A. Wheat, Chief Justice.

James M. Proctor.

F. Dickinson Letts.

Daniel W. O'Donoghue.

Jennings Bailey.

Peyton Gordon.

III. THE NATIONAL GOVERNMENT

Oscar R. Luhring.
Joseph W. Cox.
Jesse C. Adkins.

UNITED STATES CUSTOMS COURT

William J. Tilson, presiding judge.
Walter H. Evans.
Charles P. McClelland.
Jerry B. Sullivan.
George Stewart Brown.
Frederick W. Dallinger.
Genevieve R. Cline.
David H. Kincheloe.

UNITED STATES MARSHAL'S OFFICE

United States Marshal.—Edgar C. Snyder.
Chief Deputy Marshal.—Stephen B. Callahan.

UNITED STATES ATTORNEY'S OFFICE

United States Attorney, District of Columbia.—Leo. A. Rover.

Assistants.—John W. Fihelly, David A. Hart, Rebekah S. Greathouse, Harold W. Orcutt, William H. Collins, M. Pearl McCall, John B. Williams, Walter M. Shea, Charles B. Murray, William A. Gallagher, Irvin Goldstein, James R. Kirkland, John R. Fitzpatrick, Julian I. Richard, Frank W. Adams, Michael F. Keogh, Wilbert McInerney, Wilbur N. Baughman, John J. Sirica, Arthur J. Lambert, Alexander H. Bell, Jr., John J. Wilson, John W. Wood, Milford F. Schwartz, Frederick Hitz, Roger Robb.

FEDERAL JUDICIAL PROSECUTIONS AND DECISIONS

BY HOWARD BRITTON MORRIS

INSTRUCTOR, COLLEGE OF THE CITY OF NEW YORK

PROHIBITION

Ship Transportation.—The cases within this category were entirely confined to rules of evidence, grounds for confiscation, and no question of constitutionality was raised. Section 325 of Title 46 of the United States Code may be applied to a vessel licensed for the purpose of fishing but seized by the Coast Guard for the transportation of intoxicating liquors, on the ground that said vessel was engaged in the transportation of other goods than those for which licensed, but section 26 of the National Prohibition Act is not a ground for confiscation. (*United States v. Two-masted Auxiliary Schooner Ruth Mildred*. Supreme Court of the United States, May 4, 1932.) On the other hand, section 26 of the National Prohibition Act may be applied on a vessel tied to a pier and seized by the Coast Guard while being unloaded, on the argument that there was no proof of violation of the customs laws, as the liquor was being transported in territorial waters, and the vessel

may be accordingly confiscated. (*United States v. Carriveau*, C. C. A. 1, No. 2606, 25 Feb., 1932.)

Search.—Four cases were primarily concerned with the conditions justifying search. The purchase and subsequent affidavit of a prohibition officer of three glasses of beer which he did not consume, but removed for analysis by a chemist was insufficient basis for the issuance of a search warrant, as the evidence of alcoholic content was based in fact upon hearsay. (*United States v. Host*, D. C., W. D. Pa., No. 16,931, Nov. 10, 1932.) In the case where the loading of a truck with liquor is observed by prohibition agents, a warrant is not necessary for the arrest of the persons thus engaged and the consequent search of the cellar from which the liquor is withdrawn, as such loading is the first step in the transportation of the liquor, which act is a felony. Furthermore the agents were not acting unlawfully in searching garages on the premises, as such search was not exploratory. (*United States v. Fox, et al.*, D. C.,

FEDERAL JUDICIAL PROSECUTIONS AND DECISIONS

D. Mass., No. 11122, June 6, 1932.) Prohibition agents who arrested the man in charge of a restaurant when searching the restaurant on authority of a warrant, were not empowered to search an unoccupied dwelling house near the restaurant and owned by the proprietor thereof, on the theory that such search was incidental to the arrest. (United States v. Jezuis, et al., D. C., W. D. Pa., No. 1849, Nov. 28, 1931.) Persons operating stills in which they had no interest, save that of being employed to operate them, could not complain that the evidence against them was obtained by means of an unlawful search, as they had no interest in the premises. (United States v. Crushiata, et al., C. C. A. 2, June 21, 1932.) The case of Doran, Commissioner of Prohibition, et al, v. Colonial Drug and Sales Co. (C. C. A. 10, April 21, 1932) involved a number of points of law. A moot question was not involved in a suit brought for the review of the refusal of the Prohibition Commissioner to grant the complainant a permit for the operation of a bonded warehouse for the purpose of storing and distributing alcohol to be used for non-beverage purposes, because the suit was brought more than a year after the date upon which the permit would have been issued, had the application of the complainant been granted, and the period for which it would have been issued would have expired, as the issuance of the permit must have taken place before its limitation may commence to run under the regulations of the Commissioner. The Federal District Court was upheld in its order that the Commissioner issue such a permit, and the allegation that the court had erred in conducting the trial *de novo* was dismissed on the ground that the question for determination by the court was a question of law relative to the validity of the regulation of the Commissioner under the terms of the Prohibition Act. The purpose of the National Prohibition Act was to prevent the use of intoxicating liquor, and in as much as the ruling of the Commissioner that permits for bonded warehouses for the storage and distribution of non-beverage alcohol would be limited to the manufacturers of

such alcohol did not accomplish that purpose, such ruling was void, as the Commissioner was not empowered to in any manner modify the provisions of that Act.

Motor Transportation.—The use of automobiles and trucks in the transportation of intoxicating liquor gave rise to a number of judgments. A taxicab corporation was able to establish a legal claim that it was the innocent owner involved in forfeiture proceedings under the National Prohibition Act by demonstrating that it had never had such difficulty before, that the telephone call which led to the delivery of liquor by a driver of a corporation taxicab was answered by him, and that the corporation had issued strict rules against such a practice. (United States v. Raymond, D. C., E. D. N. Y., Nov. 13, 1931.) On the other hand a motor company which intervened on the claim of a lien against a truck for which payment had not been completed at the time of institution of confiscation proceedings was justified in pointing out that although the truck was found loaded with beer of illegal alcoholic content while standing on a public street, and although the motor was warm, there was no proof of transportation, but confiscation was allowed on grounds of violation of the Internal Revenue Act. (United States v. One Ford Panel Truck, D. C., S. D. Texas, 1649, Aug. 1, 1932.) The libel in proceedings for the forfeiture of trucks must show by acceptable allegations of fact that the liquor which was concealed therein for the purpose of evasion of the Federal tax as established by section 608 of the Revenue Act of 1919 was manufactured in the United States, as otherwise such confiscation can not be accomplished under this provision. (United States v. Seven Mack Trucks, et al., D. C., E. D. N. Y., No. C-2666, Dec. 7, 1931.) In the case of a driver who abandons the car in which he is transporting intoxicating liquor upon which the Federal tax has not been paid, it may be forfeited under Section 3450 of the Revised Statutes, as forfeiture under the National Prohibition Act presupposes the arrest of the driver as a condition to the seizure of the automobile

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and the conviction of said driver as a further condition necessary for forfeiture for the transportation of liquor. (United States v. One Buick Sedan, D. C. Ct. Appeals, No. 5440, May 2, 1932.) The Government was justified in the forfeiture of automobiles used in the transportation of smuggled beverages of intoxicating content under the provisions of the customs and was in no way obligated to proceed under Section 26 of the National Prohibition Act. Furthermore, it was immaterial whether the particular cars in question were thus engaged when the circumstantial evidence was such as to justify the finding that the cars were part of a process of uninterrupted carriage into the United States from Mexico. (United States v. Commercial Credit Co., Inc., Sup. Ct. U. S., May 4, 1932.) In the case of United States v. Middleton, et al. (D. C., D. Wyo., No. 3355, Feb. 25, 1932) it was held that an automobile might be forfeited, even when the owner was prosecuted for possession of intoxicating liquor, rather than for its transportation, if a prohibition officer knew that that person was using his automobile for such transportation, and having seen him place a keg in said car, directly thereafter smelled a strong odor of whiskey, and arrested him at that time. The forfeiture was under the National Prohibition Act, which was exclusive of any action under the Internal Revenue Act. This same court later held an automobile employed in the transportation of intoxicating liquor was subject to forfeiture under the National Prohibition Act, even in the absence of the arrest and conviction of the driver. The claim of an innocent lienor led to the dismissal of a proceeding under the Internal Revenue Act, and the court in making its decision pointed out the lack of unanimity of opinion as to the application of the provisions of the Prohibition Act relative to forfeitures. (United States v. One Ford Coupe, D. C., D. Wyo., Oct. 31, 1932.) In a case involving the forfeiture of an automobile for the transportation of intoxicating liquor, the fact that the auto-

mobile company appearing as an innocent lienor had procured confiscation insurance on the car in question indicated that suspicion existed on the part of the insured, and the court held that an innocent party without suspicion need not secure such insurance, but that for lack of proof that the purchaser and operator of the car were identical, and in the absence of proof that either party was reputed to be engaged in the illegal transportation of liquor, the claim of the lienor should be upheld. (United States v. Winchell, et al., D. C., D. Ore., Nov. 3, 1932.)

ANTI-TRUST ACTIONS

The case of the United States v. Swift and Co. was still in litigation and on May 3, 1932 the Supreme Court decided that the change in economic conditions was held to justify the modification of the packers' consent decree of 1920 by the court in which it was originally entered, if certain of the packers concerned sought the removal of various restraints, and the court was empowered to take such action by virtue of a provision in the decree whereby the jurisdiction therefor was specifically reserved. The decree was a judicial act and not a contract. This modification was itself an error because of the abuses which grew out of the permission which the packers granted others to use their distributive means for the wholesale dealing in various articles enumerated in the packers consent decree.

Sections 1 and 2 of the Sherman Anti-Trust Act are violated by the agreement of 137 producers of bituminous coal for the formation of a single corporation to act as their selling agent empowered to fix prices, as these producers produce more than 50% of the coal in the area wherein they operate. Such an agreement constitutes a restraint of interstate trade, and although it did not establish a monopoly nor fix other prices, it acted to affect market prices and eliminate competition. The rule of reason was disallowed. (United States v. Appalachian Coals, Inc., et al., D. C., W. D. Vo., Oct. 6, 1932.)

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The block-booking method of leasing films did not violate the Sherman Anti-Trust Act, because there was no agreement between the producers to employ such a method, and the corporation against which the suit was directed had produced a decreasing percentage of the total output of films so that there was no question of monopoly or elimination of competition. (*United States Federal Trade Commission v. Paramount Famous-Lasky Corporation, et al., C. C. A. 2, April 16, 1932.*)

INTERSTATE COMMERCE

The criminal prosecution of film exhibitors for violation of the Kansas Sunday Law does not lay any direct burden on interstate commerce, and an injunction based thereon may not be issued in a Federal court for the purpose of preventing *quo warranto* proceedings. (*Boynton, Attorney General, v. Fox West Coast Theaters Corp. et al., C. C. A. 10.*)

In the case of a holding corporation which controlled by means of stock ownership other holding corporations which in turn controlled various public utility corporations, such holding corporation was engaged in interstate commerce when the various subsidiaries were located in different states, as the Government has control and jurisdiction not only over the goods of interstate commerce, but also over the activities which affect that commerce. (*Federal Trade Commission v. Smith, et al., D. C., S. D. N. Y., Sept. 13, 1932.*)

INTERSTATE COMMERCE COMMISSION

The cases with which we are concerned here are all railroad cases. The first was the *United States v. Baltimore and Ohio Railroad Co., et al.* (Sup. Ct., U. S., Dec. 1, 1931) where it was held that the establishment of a new division of joint rates among the railroads in accordance with paragraph 6 of Section 15 of the Transportation Act of 1920 to be retroactively effective from the date of application therefore was entirely void because of this retroactive feature for which there was no provision in the terms of the Transportation

Act. Nor could a later order of the Commission make the first order effective from the date of issuance, since such orders were not divisible and could become effective only under the terms of paragraph 2 of Section 15 of the Transportation Act. On March 15, 1932, the case of the *United States v. the Great Northern Railway Co.* gave the occasion for the decision that when the United States had paid the railroad company a given sum under the terms of Section 209 of the Transportation Act in payment of the guaranteed income during the guaranty period subsequent to Federal control, the Interstate Commerce Commission could not thereafter recover from the railroad a portion of the amount of the certificates paid to it by the issuance of certificates for a lower sum in lieu thereof on the basis of a new formula for determination of amounts due the carriers, as it was not an estimate upon which the Government could recover for money paid out by mistake. (*C. C. A. 8, No. 9334.*) On Nov. 7, the case reached the Supreme Court, where the previous decision was upheld. (Sup. Ct., U. S., No. 96.) Lastly there was the case of the *Interstate Commerce Commission v. New York, New Haven and Hartford Railroad Co., et al.* (Sup. Ct., U. S., No. 15, Nov. 21, 1932) in which it was held that the Commission could not be compelled by means of a writ of mandamus to include trackage and terminal rights which were under contract with other railroads as specific and separate items of value in an inventory of the valuation of the railroad company.

CUSTOMS

The attempt to introduce imported merchandise into the commerce of the United States contrary to the provisions of paragraph H of Section 3 of the Tariff Act of 1913 was sufficient grounds for the forfeiture of such goods, even though not actually introduced into the commerce of the United States. (*United States v. 169 Bales Containing Wool, etc., C. C. A. 2, March 7, 1932.*) The terms of Section 402 (a) of the Tariff Act of 1922 are applicable to silk piece

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goods produced in Japan both for export and for sale to Japanese manufacturers of goods for exportation, and the foreign value which is thus imputed to them should not include the Japanese Textile Consumption tax as an element, as the Japanese revenue officials do not include such tax in the price of articles so produced. (*United States v. F. S. Allenby and Co., et al.*, C. C. P. A., No. 3436, May 16, 1932.) In this same case it was also held that the local appraiser should appraise the goods covered by the duress entry in a test case only after the handing down of the decision in the pending case. The provisions of the flexible tariff as set up by Section 315 of the Tariff Act of 1922 were held in the case of *United States v. Fox River Butter Co.* (C. C. P. A., June 4, 1932.) to empower the President to increase certain rates of tariff on the condition of a prior legal investigation, as such action is not a delegation of the legislative function to the President. The United States Customs Court in requiring that petitions for the remission of additional duties should be filed after the final appraisement, but within 60 days after final liquidation was exercising a valid function under Section 489 of the Tariff Act of 1922, and Section 518 which conferred the right of determination of rules of procedure upon it, and the limitation of 60 days was not unreasonable. (*United States v. P. V. Bright and Co.*, C. C. P. A., No. 3479, Jan. 25, 1932.) In promulgating a regulation as to the method for the determination of the dutiable weight of wool under paragraph 1104 of the Tariff Act of 1930, the Secretary of the Treasury was acting in accordance with the provisions of such paragraph, and there was no ground for alleging the invalidity of his act on the theory that a similar means of determination had been legislated into the terms of a previous tariff act which had since been repealed, and that the Secretary was therefore attempting to enforce a law which had been repealed. (*United States v. P. McGraw Wool Co.*, C. C. P. A., No. C-3463, Nov. 20, 1931.)

PURE DRUGS

The Federal Food and Drugs Act was not violated by describing a drug as antiseptic when the strength of the drug was below that alleged standard under which it was sold, as the term antiseptic means that the drug has a tendency to prevent the multiplication of bacteria, the development of decay or putrefaction, and such lack of alleged strength was not an adulteration. (*United States v. 17 Bottles, etc.*, D. C., D. Md., No. 4666, No. 4667, Jan. 5, 1932.) Where such drugs were not misleadingly labelled on either the bottle or the carton which contained them, a circular contained in the carton cannot be considered in the determination of whether or not the drug was adulterated. However, the libel of the Federal Government for the condemnation of drugs misbranded under the Food and Drugs Act was upheld as sufficient in as much as it alleged false and fraudulent statements applied knowingly or in disregard of their falsity, although intent to deceive was not mentioned. The case of *United States v. Shreveport Grain and Elevator Co.* (Sup. Ct., U. S., No. 19, Nov. 7, 1932) held that the eighth section of the Federal Food and Drugs Act was not in violation of the Fifth Amendment on the ground that the limits placed on weights and counts were reasonable, and that furthermore the provision empowering the Secretaries of the Treasury, Agriculture and Commerce to determine those limits was not a delegation of the legislative authority. A head cold being a common disease, a vapor inhalant for the cure thereof is a drug within the meaning of the Federal Food and Drugs Act and despite the fact that the inhalant was not taken internally and that the alcoholic content was not harmful to the public health does not preclude the application of the provision that failure to state alcoholic content on the label of the package is a misbranding of the drug. (*United States v. 11 Cartons, etc.*, D. C., D. Md., July 2, 1932.)

TAXES

Prosecution for an attempt to evade

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the payment of taxes by a false understatement of taxable income in violation of Section 111 (b) of the Revenue Act of 1926 fell under the three-year statute of limitations laid down by Section 1110 (a) of the said Act, rather than under the six year statute established by a proviso of said Section 1110 (a), according to the decision of the court in the case of *United States v. Scharton* (Sup. Ct., U. S., Apr. 14, 1932.) The capital stock tax which was imposed by the acts of 1921 and 1924 was not applicable to a corporation which was formed to examine and guarantee real estate titles and perform the other functions of a title insurance company, as such corporation was essentially an insurance company. (*United States v. Home Title Insurance Company*, Sup. Ct., U. S., Mar. 17, 1932.) The taxpayer who kept his books on a cash and calendar year basis was entitled to consider a dividend check mailed Dec. 31, 1924, but not received by him until Jan. 2, 1925 as 1925 income. (*Commissioner v. Adams*, C. C. A. 1, Jan. 11, 1932.) The Inheritance Tax Act of 1913 of the State of California was a succession tax, and not an estate tax, and as such taxes paid thereunder were not deductible in the computation of the Federal estate tax under the Revenue Act of 1916. (*United States v. Kombst*, Sup. Ct., U. S., May 25, 1932.)

WAR RISK INSURANCE, ETC.

A war veteran who had named his sister as the beneficiary of his war risk policy at a time previous to his marriage, and who in applying for vocational training and compensation at a time subsequent to his marriage named his wife as the beneficiary by his action established a controlling intention, and although he had never made a formal change of beneficiaries, his wife, and not his sister, was entitled to benefits at the time of his death, 11 years later. (*United States v. Tuebert*, D. C., E. D. N. Y., No. E-5622, March 15, 1932.) A war veteran who was unable to perform manual labor because of paralysis of the legs, but who received compensation for his services as a collector to the

extent of \$10,000 over a period of nearly 12 years, was not totally and permanently disabled within the meaning of the provision of war risk policy. (*United States v. Perry*, C. C. A. 8, No. 9256, Jan. 18, 1932.) The decision in the case of *United States v. Martin* (C. C. A. 5, Jan. 22, 1932) pointed out that the employment of a war veteran did not in itself preclude his being permanently disabled, as he might have been employed at the certain expense of his health, but that in the case of a man who had suffered a leg injury which had no other ill effect on his health than that of fatigue, and who was able to move from place to place by means of an automobile and earn his living as a real estate operator and builder was not totally and permanently disabled within the intention of the terms of his war risk policy. This same question of employment and determination of permanent disability came up in the case of *United States v. Seattle Title Trust Co.*, Guardian, etc. (C. C. A. 9, No. 6409, Nov. 8, 1931) where it was held that a war veteran who had contracted syphilis while in the army was eligible for the application of the general rule that war risk insurance policies would be construed in favor of the insured, in spite of the claim of the Government that the very nature of the disease excluded him from payment of the insurance on the grounds of misconduct on his part. The court further held, however, total and permanent disability could not be proven in the face of the fact that he had been employed in gainful occupation since the contraction of the disease, and that rest was not a method of treatment therefor.

JURISDICTION OF COURTS

The question of the jurisdiction of courts in the matter of paroles was raised in the case of *United States v. Antinori* (C. C. A. 5, No. 6400, June 1, 1932). In the case of a man whose four-year sentence for violation of the Narcotics Act had been suspended by the district court, the court was acting within its jurisdiction when, upon a subsequent conviction for violation of the Prohibi-

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tion Act, at another term of court than that at which it imposed the original sentence, it reduced the sentence to 12 months. A circuit court of appeals held that it was an established maxim that the sentence could only be changed at the same term of court, but that this maxim might be changed by Congressional statute, and that this effect had been achieved by the enactment of the Federal Prohibition Act, which makes special provisions for the revocation of parole.

INVENTIONS

The relations of employer and employee with regard to the inventions of the latter formed the basis of the case *United States v. Dubilier Condenser Corporation* (C. C. A. 3, June 3, 1932). Where the invention is the result of work done by the employee on his own time, and with his

own materials, and not related to his duties as an employee, the invention is his own property in which the employer has no interest. Where the employee is not contractually engaged in research, and develops an invention which is connected with his duties as an employee, the invention is his, but the employer has a shop-right or exclusive right to the use of said invention. In the case of employees at the Bureau of Standards who were assigned to a particular task in research, and who made inventions along an entirely different line, with the encouragement of their superior, the inventions and patents were not the property of the Government as inventions of employees specifically assigned to make them would be, for where they make inventions in connection with their work and are assigned to research duties, said inventions do not of necessity belong to the employer.

DIVISION III

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

AMERICAN ACADEMY OF POLITICAL AND SOCIAL SCIENCE, 3622 Locust Street, Philadelphia, Pa.

AMERICAN BAR ASSN., 209 S. LaSalle Street, Chicago, Ill.

AMERICAN CONSTITUTIONAL LEAGUE, 27 William Street, New York City.

AMERICAN DEFENSE SOCIETY, INC., 154 Nassau Street, New York City.

AMERICAN POLITICAL SCIENCE ASSN., Angell Hall, University of Michigan, Ann Arbor, Mich.

BETTER GOVERNMENT LEAGUE, Washington, D. C.

COMMERCIAL LAW LEAGUE OF AMERICA, 137 S. LaSalle St., Chicago, Ill.

HONEST BALLOT ASSN., INC., 120 Broadway, New York City.

LEAGUE FOR POLITICAL EDUCATION, 113 West 43rd St., New York City.

LEAGUE FOR PUBLIC DISCUSSION, 500 Fifth Ave., New York City.

NATIONAL ASSN. FOR CONSTITUTIONAL GOVERNMENT, 716 Colorado Building, Washington.

NATIONAL ASSN. OF LEGAL AID ORGANIZATIONS, 3660 University Ave., Los Angeles, Calif.

NATIONAL CIVIL SERVICE REFORM LEAGUE, 519 Fifth Ave., New York City.

NATIONAL INSTITUTE OF PUBLIC ADMINISTRATION, 261 Broadway, New York City.

VOTERS' EDUCATIONAL LEAGUE, 524 First Avenue, New York City.

DIVISION IV

STATE GOVERNMENT

NATIONAL AND INTERSTATE RELATIONS OF STATES

BY JOHN M. MATHEWS

PROFESSOR, UNIVERSITY OF ILLINOIS

FEDERAL AND STATE COOPERATION

Norris Amendment.—Among ways in which the states cooperate with the National Government are the election of President and Vice President, and the ratification of amendments to the Federal Constitution. In both these ways the states have been active during 1932. The proposed Norris Amendment, which would abolish the lame duck session of Congress and change the date of the opening of regular Congressional sessions as well as the date of the inauguration of the President and Vice President was submitted in March by Congress to the states for ratification. There was practically no opposition to the measure and most of the states which had legislative sessions during 1932 ratified it.

Ratification Referendum.—In New York Governor Roosevelt renewed his recommendation to the legislature for a popular referendum on state ratification of amendments to the Federal Constitution, apparently overlooking the fact, pointed out in *THE AMERICAN YEAR BOOK* for 1931, that such a provision in the Ohio Constitution was declared invalid in 1920 by the Supreme Court of the United States.

PROHIBITION

The opposition to prohibition definitely increased during the year, with the result that a number of states showed less inclination to exercise their concurrent power of assisting

the National Government in enforcing the Eighteenth Amendment. This tendency was shown by the action of the voters of nine states at the November election in voting to repeal constitutional prohibition or state enforcement acts. These were Louisiana, Michigan, New Jersey, California, Washington, Oregon, Colorado, Arizona and North Dakota.

Anti-prohibition referendum votes were also cast in Connecticut and Wyoming. Dry sentiment in the country, however, is by no means dead and sometimes appears in unexpected places. Thus, in Rhode Island, upon the recommendation of the governor, laws were enacted for cooperation with the Federal Government in the enforcement of the Eighteenth Amendment.

NATIONAL AID TO STATES

Grants-in-aid System.—The system of grants-in-aid to the states, which requires the latter to make appropriations equal to those of Congress, has been in full swing for two decades, in spite of the opposition of state's rights theorists and of some of the wealthier states which are inclined to regard the system as one from which they derive less benefit than expense. The economic depression has done more than all these opponents in retarding the growth and continuance of the system. This is indicated by the greatly decreased amount of financial aid granted by Congress to the states in 1932 for the construction of roads.

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R. F. C. Loans.—A different system of National aid was that necessitated during the year by the dire need occasioned in many parts of the country by widespread unemployment. In some of the more industrialized states, such as Pennsylvania and Illinois, the huge problem of caring for the unemployed soon exhausted the resources of the state government and caused them to look to the National Government for aid. In order to meet this emergency Congress passed a law establishing an immense relief fund and created the Reconstruction Finance Corporation to administer it. Large sums have been loaned to the states for self-liquidating construction projects, but hundreds of millions of dollars have been loaned for unemployment relief. The states are not required to match these Federal funds dollar for dollar, but they must ultimately be paid back. Federal aid in this emergency seems necessary as a temporary expedient, but is likely to undermine the self-reliance of the states in taking care of their own local needs, and may have far-reaching effects.

CONGRESSIONAL REDISTRICTING

Post-census Redivision.—One of the duties owed by the states to the National Government is the division of their territories into districts for the election of members of Congress. After the reapportionment of seats in Congress following the census of 1930, it was found that some states had lost, and others had gained, representatives, necessitating the redivision of the state into Congressional districts, a function assigned by Federal law to the state legislatures.

Illinois.—No change in the number of representatives in Congress was made by the Apportionment Act passed by Congress under the 1930 census, but Illinois received two additional representatives by the Apportionment Act passed under the census of 1910, who have since been elected at large. In 1931, however, the state legislature undertook to pass a redistricting law providing districts for these additional representatives. Early in 1932 this law was declared invalid

by the state courts. The basis for this decision was that the districts provided in the state law did not comply with the requirement of "approximate equality of population" as stipulated in Congressional apportionment laws. The result of this decision was to leave in force the previous arrangement whereby the two additional representatives were elected at large.

Virginia and Mississippi.—Congressional redistricting acts in Virginia and Mississippi were also held invalid by the courts in those states on the same ground as in the Illinois case. This was the situation when, in October, 1932, the Supreme Court of the United States handed down a decision in the case of *Wood v. Broom*, which came up on appeal from the decision of the Mississippi court holding invalid the redistricting law of that state. The higher court reversed the Mississippi court on the ground that the mandate contained in the Congressional reapportionment act of 1911 requiring districts to be composed of compact and contiguous territory and to contain as nearly as practicable equality of population had been intentionally omitted from the Congressional Act of 1929 providing for reapportionment under the census of 1930 and therefore was no longer in force. The Supreme Court decision came too late to affect the situation in Illinois and the two additional representatives in that state were consequently chosen at large at the November election.

Gubernatorial Participation.—Another question which has arisen in connection with the division of a state into Congressional districts is as to whether the governor has the right to participate with the legislature in enacting the state redistricting law. It has been held that when the state legislature ratifies an amendment to the Federal Constitution, the governor does not participate. By analogy it was argued that he had no share in the enactment of a Congressional redistricting law and in some states, including New York, Minnesota, and Missouri, the two houses of the legislature undertook to pass such laws without the participation of the

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governor. On this ground, however, the Supreme Court of the United States invalidated the state laws, holding that redistricting is an act of legislation which is subject to the governor's approval or veto. This decision is in harmony with the decision of that court upholding the right of a popular referendum on a redistricting law, while denying its validity as applied to a state legislative act ratifying an amendment to the Federal Constitution. The result of this decision was that in New York the previously existing districts remained unchanged while two additional representatives had to be elected at large. In Minnesota and Missouri, however, since their representation in Congress had been reduced under the new Apportionment Act, all of their members of Congress had to be elected at large.

LAKE MICHIGAN WATER DIVERSION

By previous decisions the Supreme Court of the United States had placed limitations upon the amount of water that may be withdrawn from Lake Michigan by the Chicago Sanitary District. These limitations are substantially incorporated in the St. Lawrence seaway treaty with Canada, subject to the possibility of the increase of diversion in times of emergency. This provision has aroused opposition in some quarters, the con-

troversy revolving around the question as to whether Lake Michigan is to be considered as a domestic or an international body of water. It is also felt by some that the interests of the Lakes-to-Gulf deep waterway are endangered by the St. Lawrence seaway project. In its previous decision the Supreme Court had required that water diversion at Chicago was to be progressively reduced by 1938 to 1500 cubic second feet. Meanwhile it was expected that the Sanitary District would avail itself of the opportunity to construct new sewerage works, but on account of financial embarrassment, it has been unable to proceed with this program. Consequently, four lake states—Wisconsin, Ohio, Minnesota, and Michigan—have brought suit in the Supreme Court at Washington asking for the appointment of a Federal receiver for the district to levy taxes and take over the construction of the sewage treatment works. This suit the Court has taken under advisement.

THE CONFERENCE OF GOVERNORS

The annual conference of governors met at Richmond, Va., in April. It was addressed by President Hoover who emphasized the need of reduction of expenditures, the finding of new sources of revenue, and greater coordination of governmental efforts to prevent overlapping of functions.

STATE CONSTITUTIONS, REFERENDA AND INITIATIVES

BY FREDERIC H. GUILD

PROFESSOR, UNIVERSITY OF KANSAS

GENERAL

In 39 states in 1932, 220 questions were submitted to a statewide vote. Of these 118 were adopted. Constitutional amendments submitted by the legislature numbered 122, with 75 approved. Fifteen constitutional amendments were submitted by initiative, but only five carried. Forty laws were initiated and 20 passed. Nineteen acts were submitted to refer-

endum and only seven were approved. States with the largest number of questions were: North Dakota, 21; California, 20; Louisiana, 17, and Oregon, 13.

STATE PROHIBITION

State prohibition laws were repealed in Arizona, California, Colorado, Louisiana, New Jersey, North Dakota and Oregon. Wyoming ap-

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proved repeal of the 18th Amendment, and Louisiana petitioned Congress to call a constitutional convention for its repeal. In addition California and Michigan voted provisions for a system of state liquor control.

ECONOMIC RELIEF

Agricultural Measures.—Many of the proposals were directed towards depression relief, reduction of taxes and cost of government. North Dakota rejected proposals for a five-year and later a three-year moratorium on mortgages and debts to be accomplished by forbidding sheriff-forced sales or seizures. Prohibition of mortgages on crops was voted in April and an attempt to repeal the law was later defeated. North Dakota, however, did reduce the salaries of district and supreme court judges, with a 20 per cent reduction of salaries of state officials. California, however, refused to soften its mortgage foreclosure law.

Unemployment Aid.—Bonds of emergency relief were voted as follows; Illinois and New Jersey, \$20,000,000; New York, \$30,000,000. Oklahoma rejected a proposed new commission to build reservoirs and farm-to-market roads financed by an additional cent gasoline tax, for unemployment relief for a limited period.

Taxation.—A tax limitation amendment of $1\frac{1}{2}$ per cent, except by $\frac{2}{3}$ vote, was approved in Michigan, as was a 40-mill limit in Washington. Oklahoma and Kansas rejected similar amendments, and Oregon defeated proposals for appointive tax supervising and conservation boards in each county, and general authorization to the legislature to limit all governmental units. Arizona rejected the limitation of state and county expenditures on a 1916-17 basis, plus allowance for increased population. Tax measures were numerous. Kansas, Minnesota and Washington approved income tax amendments but Alabama, Colorado, Idaho and Indiana rejected them. Increases in income tax rates were defeated in Oklahoma and Oregon as were increases in gasoline tax rates in Colorado, Maine, Oklahoma and North Dakota.

The sales tax was defeated in Arkansas and Idaho. Classification of property lost in Georgia and Minnesota, but a severance tax on natural resources passed in Louisiana. Complete exemption of homesteads from taxation was defeated in Arkansas, but exemptions of \$3,000 in Texas and \$2,000 in Louisiana were approved, as was \$1,000 exemption for war veterans in California. Vessels were exempted from local taxes under the California plan of segregating sources of state taxes. Oregon refused to increase charges on busses and trucks, and Arizona rejected a proposal for a complete economic and fiscal state survey for taxation purposes.

Expense Retrenchment.—The executive budget was adopted in Missouri. An attempt to abolish 18 boards and commissions by creating a Tax Welfare Board, limited to 50 per cent of former expenditures, failed in Arizona which also refused to abolish the Industrial Commission. South Dakota failed to eliminate the salaries of state officials from the constitution, with view to reduction, but Wisconsin approved a similar amendment. Washington created a department of game control, its eleventh department. Idaho refused to establish a tax commission.

WATER POWER CONTROL

One of the most significant amendments adopted was the provision in Oregon for state water power and hydro-electric control, requiring that the sites must be owned in perpetuity by the state.

EDUCATION

Louisiana and Mississippi increased the minimum school age from five to six. Georgia authorized school district consolidation. Oregon refused to move and consolidate the various institutions of higher education, but also rejected a referred appropriation for them. California refused to adopt the income and sales tax to provide a state school fund, which would have shifted the financing of schools from the localities to the state. Changing the normal schools

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to teachers' colleges to add training of high school teachers, failed to carry in South Dakota. Louisiana provided additional funds for the university from the excise tax on insurance policies.

CONSTITUTIONAL AMENDMENTS

Ohio rejected its constitutionally required proposal for a constitutional convention, and attempts to make amendments easier of adoption failed in Illinois, North Carolina and North Dakota.

JUDICIAL CHANGES

Oregon authorized waiver of jury trial in criminal cases. Florida increased the supreme court from six to seven justices, but Washington failed to extend the appellate jurisdiction of its supreme court. Georgia abolished justices courts in one county.

SUFFRAGE PROVISIONS

Permanent registration carried in Washington. Property qualifications for voters on debt and tax questions were approved in Montana, Oregon and Texas, and in Idaho for all irrigation district elections. Georgia lowered its qualification to payment of poll taxes only, but Mississippi rejected a similar proposal. Pre-primary conventions were approved in Massachusetts. Absentee voting carried in Connecticut but North Dakota rejected a modification of its law.

LEGISLATION

A split session was rejected in Arkansas but was approved in Georgia, with 10 days in January for organization and introduction of bills, and a 60-day session beginning in July. Arizona reduced its house from 64 to 37 members and compensation from \$15 to \$8 per day. Tennessee refused to increase legislative per diem from \$4 to \$10. Alabama refused to increase the size of its Senate as did Georgia also. New Mexico limited introduction of bills after the forty-fifth day, except appropriations and measures recommended by the governor in special messages. Louisiana limited introduction of bills to the first 21 days. Changes in legislative appor-

tionment failed in Michigan and Washington but Colorado revised its system slightly. California refused to increase the total per diem allowance for legislative expense, and improved its initiative law by requiring that a draft must first be submitted to the attorney general.

HOME RULE

Home rule for cities carried in Utah. Exemption from the constitutional limit of indebtedness of municipally-owned public utilities passed in Wisconsin but failed in Alabama. Oregon refused to approve budget control for cities and California denied to home rule charters the right to select any mode of election or nomination they desired, but altered its provisions concerning publicity on such charters. Proposals for four-year terms for county officials were defeated in Alabama, Colorado, Florida and North Carolina, and Kansas, and South Dakota refused re-election of certain officials for more than four years. County consolidation carried in Idaho. California rejected home rule charter-making by county boards of supervisors instead of by elected freeholders and the proposal that would free such charters from the system of nomination and election provided by state law.

MISCELLANEOUS MEASURES

Many miscellaneous measures were of interest. Four referendum measures authorized taxation of oleomargarine or butter substitutes. These passed in Oklahoma and South Dakota but failed in Colorado and Oregon. Missouri adopted old age pensions. Texas authorized a Texas centennial. North Dakota prohibited corporation farming. Illinois revised its banking law with reference to closed banks. Road lighting, and port, harbor and terminal districts were authorized in Louisiana as was consolidation of various similar districts. The U. S. "Lame Duck" Amendment was approved in Massachusetts.

Significant measures rejected included: authorizing the legislature to prescribe qualifications for the prac-

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tice of law (Indiana); creating of a public safety commission to detect crime and patrol highways (Nebraska); recreation facilities in forest preserves (New York); limiting acreage of crops to 30 per cent of previous year (Oklahoma); the removal of the state capital from Bismarck to Jamestown (North Dakota); the creation of a racing board and licensing of wagers (California), and chiropractic laws (Arizona, Massachusetts).

LAW REFORM

BY CLINTON ROGERS WOODRUFF

HONORARY SECRETARY, NATIONAL MUNICIPAL LEAGUE

AMERICAN LAW INSTITUTE

The Tenth Annual Meeting of the American Law Institute was held at Washington, D. C., May 5, 6 and 7. The reports of various officials showed the steady progress made during the past year towards the present goal of the organization. The address of President George W. Wickersham, with its suggestion that the time was apparently ripe for a statement of the fundamental criminal law, and that the technique developed by the Institute was particularly well suited for the task, pointed to yet further goals to be set in future, and the actual work accomplished by the meeting in the consideration of tentative and proposed final drafts will compare favorably with the record of previous ones.

The Institute as a Forum.—There was other testimony to the position which the organization now occupies. When an institution has attained a secure position of influence in a particular field, men of thought and action welcome the opportunity to make appeals at its meetings or functions, not only to the select group of its members, but also to a wider audience. The history of the American Bar Association of recent years illustrates the point. The stirring appeal of Chief Justice Hughes that the Bar, with its special knowledge, furnish the expert guidance and determined leadership needed to keep the foundations of justice secure against corrupting influences, illustrates the point in the case of the American Law Institute. The brief

banquet address of Samuel Seabury, in which he showed how the rule against self-incrimination and the principle of professional privileges are being prostituted to the protection of corrupt public officials and public contractors, contained a message for all lawyers interested in their profession and in good government.

Chief Justice Hughes's Appeal.—

"We are living in a time of many anxieties," said the Chief Justice: "but discouragement pays no dividends. It is not a time for delaying effort, but for redoubling it, for increased activity on every front. The influence of the members of this body pervades every community. Their special task in this organization is a recondite one, but their interest in the administration of justice far transcends the limits of that task. While we are concerned with the higher realms of legal thought we cannot ignore problems, even more pressing, that concern the supremacy of law. What does it profit to attempt to perfect the superstructure, if the foundations are left insecure? How is society to protect itself against the corrupting influences which tend to render it impotent to perform its primary obligations? That is the paramount problem of today. The Bar with its special knowledge has a grave responsibility to furnish expert guidance and determined leadership in dealing with this problem. The Bar has the capacity not only to instruct but to energize. It controls the needed lev-

erage of acumen and experience. These are hard days, critical days, but they are days in which it is worth while to live and toil,—stirring days!”

Publication of Restatements.—A culminating point in the history of the Institute was furnished by the announcement from President Wickersham and Director Lewis that arrangements have been made for publishing the first Restatement—that on Contracts—next September. Other Restatements will follow as rapidly as is consistent with thoroughness in the final revision of each work. That is the big accomplishment of the current year and marks an important milestone of progress.

Drafts of Contracts.—In the business sessions of the Institute the texts were given the customary attention, section by section, the Reporter taking the platform to answer questions and make such explanations of difficult or disputed points as he thought necessary. At the conclusion of the meeting the Proposed Final Drafts of Contracts covering Impossibility, Illegal Bargaining, Specific Performance and Election of Remedies, and certain “Suggested Changes of Importance in the Official and Tentative Drafts of the Restatement or Contracts,” had been approved, but Proposed Final Draft No. 4, which is the Chapter on “Administration of Estates” in Conflict of Laws, was referred for such revision as might be found necessary in view of the series of recent decisions of the U. S. Supreme Court, beginning with *Frick vs. Pennsylvania* and ending with *First National Bank of Boston vs. the State of Maine*. Prof. Williston, Reporter for Contracts, and Prof. Beale, Reporter for Conflict of Laws, answered questions as to the Proposed Final Drafts on those subjects.

Double Jeopardy.—The first of the Tentative Drafts to be taken up was Administration of the Criminal Law No. 2, covering the subject of “Double Jeopardy.” Professor Mikell, of the University of Pennsylvania Law School, is the Reporter on this subject, which, as might well be imag-

ined, aroused much interest. The principle followed in the text, as stated in the introductory note to the Tentative Draft, was “that only an acquittal or conviction—not jeopardy of conviction or punishment—is a bar to a second prosecution for the same offense.”

Questions of Trial Error.—The section in the draft providing that “where the defendant has been acquitted, and in the course of the trial a material error has been made to the prejudice of the State the State shall be entitled to a new trial” was the focus of attention. Reporter Mikell admitted it was a radical departure from the present practice, but defended the section on the grounds of logic and justice alike. He pointed out that a new trial, secured by the State on appeal because of error resulting in acquittal in the lower court, could not be regarded as a second prosecution for the same offense; it was merely a continuation of the original prosecution.

Professional and Public Relations.—The Report of Herbert F. Goodrich, Adviser on Professional and Public Relations, showed encouraging progress of the Institute and its work in professional recognition; gave the situation with respect to the local annotations of the various subjects which have already reached the stage of this sort of professional cooperation; spoke of conferences with the American Law Institute Publishers concerning technical details of the publication of the Restatements; mentioned the helpful recognition of the Code of Criminal Procedure by Bar Association Committees and by commissions in various States, and concluded with a list of articles showing the gratifying extent to which the profession was being kept informed of the Institute’s work.

AMERICAN BAR ASSOCIATION

Annual Meeting.—In connection with the 55th Annual Meeting of the American Bar Association at Washington in October the corner stone of the new Supreme Court Building

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was laid by President Hoover, Chief Justice Hughes and officials of the Association. In the course of his address President Hoover declared that the Supreme Court was "irreprehensible because its membership in successive generations down to this moment has comprised the highest character of our land who, preserving its great traditions, have armored it with the moral support of the people and thus, without physical power or the need of it, is able to stand equal and alone against legislative encroachment upon the people's rights or executive usurpation of them and, more precious than either, against private injustice and the enactment of public laws in violation of the fundamental protections of the Constitution." In his opening speech President Thompson of the Association said "We vaunt a government, of, by, and for the people, yet we suppress the interest of our children in public affairs . . . by encouraging them to avoid politics and to shun public affairs. We vaunt a government to encourage business, yet government bureaus are now in competition with more than 250 lines of business; a government to protect property, yet one-fifth of the nation's annual income—\$14,000,000,000—was wrung from the people last year to defray expenses of governmental operations."

Transactions.—Among the important transactions of the Association was the adoption of a report committee urging police to substitute scientific methods of crime detection for the third degree; the approval of

a bill to modify the Federal anti-trust laws so that "contracts voluntarily submitted to the Attorney General and filed with the Federal Trade Commission, shall become automatically effective unless objection is made"; continued for another year an investigation (already two years old) into gang operations, which showed that the rise to wealth of gangsters was due mainly to Prohibition; and approved formation of a National Junior Bar Association for lawyers aged 35 or younger. Clarence Eugene Martin, of Martinsburg, W. Va. was elected President.

CARNEGIE FOUNDATION'S REVIEW OF LEGAL EDUCATION

The Carnegie Foundation's *Review of Legal Education in the United States and Canada* for 1931, issued in 1932, suggests that the newly organized Conference of Bar Examiners may in time be able to accept the burden of publishing the *Review*. The *Review*, with its elaborate statistical and routine information, has been established only because lawyers have not, as yet, developed the requisite machinery and procedure for doing this work themselves. "The Foundation is as eager to relinquish this responsibility as the profession ought to be to take it over." The *Review* reports a total expenditure upon the study of legal education and cognate matters, during a period of a little over eighteen years, of \$238,630.02. Nearly one-third of this sum represents the cost of printing and distributing publications.

STATE ADMINISTRATION

BY JOHN M. MATHEWS

PROFESSOR, UNIVERSITY OF ILLINOIS

LEGISLATIVE SESSIONS

The year 1932 would ordinarily have been an off-year in the initiation of new state policies, since most regular legislative sessions convene only in the odd years. Special circumstances,

however, led to the convening of an unusual number of special sessions. Altogether, nine regular sessions were held and, in addition, special sessions were held in nine other states.

THE STATES AND THE DEPRESSION

Many of the new policies and activities of states during the year were directly or indirectly influenced by the economic depression which has affected governments in much the same way that it has affected individuals. There has for years been a growing movement for greater economy in the operation of state governments. During time of prosperity, this movement fell into the background, but the depression has served to push it to the front again. The depression has caught the state between two fires: on the one hand, it emphasizes the need for greater economy and retrenchment in expenditures while, on the other, it has left certain groups of people in special need of state financial aid, either through the reduction of taxes or through the direct extension of relief to particular classes, such as the unemployed. Consequently, there has been retrenchment in some directions and greatly increased expenditures in others. In many instances the states have endeavored to meet this situation by borrowing money, usually from the Reconstruction Finance Corporation. Some economies have been effected by reorganization of state administrative agencies, by elimination or reduction of some services, and by bringing about a greater degree of control and supervision over the taxing, borrowing, and spending activities of local units of government. There is no doubt much unnecessary waste in government, but the demand for economy in government may result in mere blind destruction or crippling of essential services and, in order to combat this tendency, the National Municipal League created a committee on constructive economy in government. In its report this committee declared that among the factors producing unnecessary cost of government are the excessive number of overlapping and poorly organized governments, poor budget, accounting, and purchasing methods, and partisan interference in administration. Sporadic attempts, however, are being made here and there to remedy these conditions.

THE GOVERNOR

Louisiana.—A contest arose between Governor Long and Lieutenant-Governor Cyr over conflicting claims to the office. Long was elected to the United States Senate, but declined to relinquish the office of governor. Cyr brought suit to oust Long, but the court held that it had no jurisdiction to remove him. The grounds of this decision were, first, that there is no way to remove a governor in Louisiana except by impeachment and, second, even supposing the two positions of state governor and United States senator could not be held by one person at the same time, Long had not actually taken his seat in the Senate and had not been legally inducted into his senatorship. (State ex. rel. Cyr v. Long, 140 So. 13, decided January, 1932).

New York.—At the regular 1932 session of the legislature, Governor Roosevelt made a number of recommendations, some of which were adopted. One that failed was that the governor should be elected for a four-year term, the election to fall in a year in which the presidential election is not held.

Special Session Pledges.—In some states the legislature at a special session is limited to acting on the matters mentioned by the governor in his call for the session, but in other states he does not have this power. In the latter states, however, the governor may seek to attain such a power, before agreeing to call a special session, by exacting pledges from legislators as to the matters to be taken up therein. This device was resorted to by the governors of Mississippi and Indiana.

Control of Departmental Appropriations.—In the interests of economy a recommendation of the governor of New Jersey was adopted at the regular legislative session in that state whereby the governor was vested with the power of reducing or suspending during the year any appropriation for the running of a state department or institution. This will enable the governor to exercise large powers of control over the state administration. Such a power may oper-

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ate to enable him to control officers not appointed by him but elected by popular vote. In this connection may be mentioned the power exerted by the governor of Washington to investigate, through his director of efficiency, the work and financial transactions of any state office, including those under elective officials. Moreover, the cost of such investigation is defrayed out of the regular appropriation of the office investigated. The result is to enable the governor at his pleasure, under the guise of investigating alleged irregularities, virtually to reduce the amount of the appropriation available for the use of any state office or department.

STATE ADMINISTRATIVE REORGANIZATION

Missouri.—On account of large decrease in revenue collections in Missouri, the governor of that state found it necessary to ask spending agencies to reduce their expenditures by 25 per cent. This experience convinced him of the need of reorganization and consolidation of administrative agencies in the interests of economy, which he accordingly recommended.

Mississippi.—Upon the basis of a survey of the government of Mississippi made by the Brookings Institution, the governor of that state proposed a general reorganization of the state's administrative machinery. This proposal was adopted by the legislature to the extent of consolidating the control of all the state owned and operated higher educational institutions under a single board of trustees, a step which had already been taken in Georgia. A committee of the Mississippi legislature was also appointed to report on further administrative reorganization at the next session.

Arkansas and Texas.—In Arkansas a commission appointed by the governor took under consideration the consolidation of numerous state bureaus and departments. In Texas a joint legislative committee has been created for the purpose of investigating the various state departments, institutions, and agencies, with a view to making recommendations for reorganization.

Michigan.—In some states attempts at economy have been made, not through abolishing or consolidating administrative agencies, but by reducing the size of paid boards and commissions, resulting in a saving in salaries as well as in rendering the agency more wieldy and efficient. Thus, the Michigan commission on the cost of state government reported in December recommending the reduction of the public utilities commission from five to three members. The commission also recommended the elimination of numerous offices and bureaus, the reduction of state salaries, and the transfer of the power to fix the state tax rate from the state administrative board to the legislature.

STATE FINANCE

Indiana.—The burden of taxes during the depression has fallen with special weight on the owners of real estate and has caused loud complaint. In an effort to remedy this situation, the legislature of Indiana in a special session adopted the drastic expedient of placing a limit of \$150 upon each \$100 of taxable real and personal property in the state, of which only 15 cents shall be for state purposes. This contrasts with a previous total rate of about \$2.80 and a state tax of 29 cents. The legislators, however, seemed to have doubts as to whether this plan would work, for they set up county boards of tax adjustment with power to raise the rate without limit when an emergency exists. No provision, however, was made for increase in the state rate in case of emergency, with the result that it will be difficult for the state to operate without a deficit.

Michigan.—The precedent set by Indiana in limiting the tax rate has been followed by other states, notably West Virginia and Michigan. In the latter state the voters at the November election approved a constitutional amendment limiting the total amount of taxes to 1½% of the assessed value of the property. The voters in any assessment district, however, may, by a two-thirds vote, increase this limit to 5%. The reduction in income arising from limitation of the

tax rate will probably give new impetus to the movement for reorganization of administrative agencies in the interests of economy.

Tax Measures.—While some states have been engaged in placing limits on old taxes, others have been reaching out for new taxes. The gasoline tax, which is a special form of sales tax, has afforded the states a new source of revenue. It suggests the further possibilities inherent in a general sales tax which has now been introduced in some states. It is recognized that the burden of such a tax will be shifted to the consumer and that it will rest more heavily upon people with the smaller incomes. In order not to tax unduly the poor, sales of foodstuffs, and sometimes other necessities, are exempted. The most noteworthy instance of the adoption of the sales tax was in Mississippi, which fixed the rate at 2%. This carried out Governor Conner's recommendation and has had the effect of rescuing the state from imminent bankruptcy.

Budget and Purchasing Reforms.—Other reforms of a financial nature considered or adopted in various states are the executive budget system and centralized purchasing. The former was agitated in Missouri and Mississippi while the latter, having been adopted in Maine, was put into operation. The Maine agency is the bureau of purchases in the department of finance. During the first eight months of its operation, it succeeded in saving many thousands of dollars to the state in the purchase of coal, gasoline, and other supplies.

Salary Cuts.—In a number of states, a movement has developed for reducing the cost of state government by cutting the salaries of state officers and employees. Thus, at the regular session of the Virginia legislature, a bill was passed providing for a reduction of 10% in state salaries for one year.

STATE CONTROL OF LOCAL GOVERNMENT

Tax Machinery Reorganization.—Since by far the larger share of the total taxes resting upon the people are collected and disbursed by local

units of government, a program of economy involves the bringing of the financial transactions of such local units under centralized state control. Many examples of this tendency occurred during the year. Thus, an act was passed by a special session of the Illinois legislature providing for the reorganization of the tax machinery of Cook County. It abolishes the former board of assessors, numerous rural township assessors, and the board of review. In their place, it creates the office of county assessor of Cook County, to be appointed by the governor and the chairman of the Cook County board of commissioners. This reorganization has increased the efficiency of the assessment work, has improved the credit of the county, and helped to extricate the county from its complicated tax muddle.

Highways.—Following the lead of North Carolina, Virginia has transferred to the state complete responsibility for highways except in counties which reject the plan by popular vote. Only four counties have done so, the other 96 counties accepting the plan of centralized road administration.

Bond Issues.—The North Carolina plan of giving the state supervision over all bond issues of local governments has been adopted by Rhode Island and has been strongly recommended for adoption in Oregon by the governor of that state. This plan was also proposed in South Carolina, but defeated.

Other Control Measures.—In New Jersey the Commission to Investigate County and Municipal Taxation and Expenditures recommended the enactment of several bills providing for state administrative control over local government. A plan of state control of local bond issues and budgets has long been in existence in Indiana. In North Carolina state fiscal control over localities has served to decrease county taxes. In that and some other states, the movement for state centralization of county functions is causing the county to decrease greatly in importance. The theory is that since reform of the county is hopeless,

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the only remedy is to transfer its functions to the state, causing it substantially to fade from the picture. In still other states, however, a remedy is being sought along the lines of improving and reinvigorating county government. The former tendency, however, seems more promising.

Veto or Approval of Expenditures.—In New York Governor Roosevelt held hearings on the basis of evidence collected by the Seabury investigation into the conduct of Mayor Walker of New York City. When it appeared that the course of the hearings was leading inevitably to the exercise by

the governor of his power of removing the mayor, Walker resigned. At the special session of the New York legislature held in December, Governor Roosevelt recommended that authority should be conferred upon the governor to appoint financial agents who would have power to approve or veto expenditures of local units of government, especially in cases of threatened default. This plan is already in effect in Massachusetts, but is naturally opposed by local politicians who are interested more in the spoils of government than in its efficient and economical management.

COUNTY AND RURAL GOVERNMENT

By PAUL W. WAGER

PROFESSOR, UNIVERSITY OF NORTH CAROLINA

AGITATION AND INVESTIGATION

Taxpayers' Organizations.—In enumerating the achievements in rural local government in 1932 it is not possible to report the widespread adoption of improved governmental machinery or the attainment in many places of a needed revision of political boundaries but greater triumph can be recorded,—the resumption of control of government by the citizens and taxpayers. In the interest of tax relief hundreds of taxpayers' associations have been organized, which began as expressions of protest but may develop into that enlightened popular control which is the greatest defense of the taxpayer and the true bulwark of democracy. In some states, the local groups have been federated into a state-wide organization. This is the case in Missouri, and the Committee on Taxation and Governmental Reform has agreed upon a long list of economy measures to recommend to the General Assembly in 1933. Evidence that these groups of citizens may exert a constructive influence for years to come is furnished in Kansas. Through the stimulus of the Kansas Chamber of Commerce tax study clubs are being

formed in all parts of the state. College professors have collaborated in preparing outlines of study for their use.

Surveys.—In Michigan, a commission, authorized by the last legislature, has been making a thorough study of county, township and school district government. The study is giving attention to land utilization, natural trade areas, control of settlement, the possibility of eliminating townships and consolidating counties as well as making a comparative study of costs in selected counties. The National Institute of Public Administration prepared for Governor Roosevelt of New York a preliminary statement of the rural government problem in that State. Among its tentative recommendations were: (1) the abolition of town government and local improvement districts; (2) the establishments of new forms of county government; (3) the transfer to the State of certain county functions; (4) the consolidation of counties and the reestablishment of county boundaries, and (5) the establishment of an unorganized state reserve in the sparsely settled Adirondack region. The Institute for Government Re-

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search of the Brookings Institution completed surveys of state and county government in both Mississippi and Alabama. A survey of state and local government in New Hampshire is still in progress. The first published report of the Committee on County Government of the National Municipal League (see *THE AMERICAN YEAR BOOK*, 1931, p. 127) is a comprehensive survey of the constitutional barriers to improvement in county government, by Howard P. Jones.

The Bureau of Agricultural Economics of the United States Department of Agriculture made studies of rural local government in selected counties of Wisconsin, Louisiana, Florida, and Montana. The Ohio Institute, in cooperation with other research organizations of the state, completed a survey of 19 representative counties. In its report it recommends: (1) a reduction of the number of offices and boards by grouping activities into a few departments on the basis of functions; (2) the creation of a chief executive officer; (3) the choice of ordinary administrative officers by appointment; and (4) the provision of sufficient flexibility to permit the adjustment of county organization to the needs of counties of different sizes and types.

REORGANIZATION OF RURAL LOCAL UNITS

Elimination of Townships.—In searching for avenues of tax reduction, taxpayers have begun to question the need for so many units of local government. Thus there is an agitation for the abolition of township government in at least the following states: New York, Pennsylvania, Indiana, Wisconsin, Minnesota and Missouri.

Consolidation of Counties.—There is also a widespread sentiment for county consolidation. However, the year witnessed only one consolidation. On January 1, Campbell and Milton counties, Georgia, merged with Fulton, of which Atlanta is the county seat. This is the first consolidation to be accomplished since

1919 when James County, Tennessee, was annexed to Hamilton County, which contains Chattanooga. The advantages of county consolidation have been presented to their respective legislatures by the Governors of Virginia, North Carolina, Tennessee, Kentucky, Oklahoma, Michigan, Indiana, and California. Programs of wholesale consolidations have been proposed by legislative or other responsible agencies in a number of states. The proposed reduction in Arkansas is from 75 to 25, in Idaho from 44 to 14, in Illinois from 102 to 52, in Kansas from 105 to 46, in Missouri from 114 to 40, in Mississippi from 82 to 40, and in Texas from 250 to 50.

ADMINISTRATION

County Managers.—On Jan. 1, 1932, Arlington County, Virginia, began operating under the county manager plan. Although this is the only county as yet which has a thoroughgoing manager, there are several other counties in Virginia, and nearly a dozen in North Carolina, which have clothed a county officer with considerable executive authority and in some instances call him a manager. Both states have passed the necessary enabling legislation to have full-fledged managers. The way has also been cleared in Georgia, Montana, and California. In February, the voters of Ravalli county, Montana, rejected a proposal to consolidate the county and all its cities and towns and operate under a county manager. In November, San Mateo County, California, adopted a manager charter. The adoption of the plan is being considered in no less than 28 counties of 10 states.

State Centralization in North Carolina.—In North Carolina the Local Government Commission, a state administrative agency established in 1931 to supervise the finances of local governments (see *THE AMERICAN YEAR BOOK*, 1931, p. 129) has rendered valuable service in reviewing applications for note or bond issues, particularly tax anticipation loans, aiding local units in refinancing operations and safeguarding sinking

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funds. State maintenance of all highways, begun in 1931 (see THE AMERICAN YEAR BOOK, 1931, p. 128), has proved highly successful. The state has maintained the roads better than the counties were doing at three-fourths the cost and in addition has relieved the counties of the care of 4,600 prisoners.

LEGISLATION

Virginia.—The greatest single achievement of the year in the field of county government was unquestionably the legislation adopted in Virginia. The recommendations of the Commission on County Government (see THE AMERICAN YEAR BOOK, 1931, p. 128) were adopted with virtually no opposition or modification. Provision is made for the adoption of one or two optional forms of county government in any county when approved by the qualified voters thereof. These forms are a *County Executive Form*, under which the administrative officers are appointed by and directly responsible to the board, and a *County Manager Form*, under which the board appoints a manager who in turn appoints his administrative assistants. Both forms contemplate the consolidation of the county functions under a few major divisions, or departments, and the concentration of all the financial and technical affairs of the county under a policy-forming board of county supervisors, limited in number, elected on a county-wide basis, and provided with a competent executive head. Other enactments provide for the voluntary consolidation of counties, or for the joint support of certain services by two or more adjoining counties, or by counties and towns. The general assembly also abolished the fee system as a method of compensating county treasurers and commissioners

of revenue. Finally, it placed all local highways except those of form counties (40,000 miles) under state maintenance.

Indiana.—The special session of the Indiana legislature passed important legislation in the interest of property tax relief. One act (Chap. 10) provides that the total tax levy on property shall not exceed $1\frac{1}{2}$ per cent of the assessed value, with the proviso that a county board of tax adjustment may permit this limitation to be exceeded in case of emergency. Another act (Chap. 16) transfers all township highways to the county and provides that these and all other county highways be maintained entirely from the proceeds from the gasoline and motor vehicle taxes. One half of the revenue derived from these sources is returned by the state to the counties and cities. Another act prohibits the issuance of bonds for the construction of county highways for a period of five years.

Kentucky.—The Kentucky legislature provided for the adoption in all counties of the state of a uniform budget system. The form of the budget is to be drafted by the state budget commission and the annual budget is to be prepared by a county budget commission consisting of the county judge and two members whom he appoints. The county treasurer is to serve as secretary (Chap. 24).

BIBLIOGRAPHY

One of the outstanding contributions of the year is an annotated list of the books and articles on county government which have appeared in the last 15 years. The bibliography, which contains over 400 titles, is the work of Miss Margaret Kehl of the New York Municipal Reference Library.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

DIVISION IV

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

AMERICAN CONSTITUTIONAL LEAGUE, 27 William Street, New York City.	NATIONAL CIVIL SERVICE REFORM LEAGUE, 519 Fifth Ave., New York City.
AMERICAN DEFENSE SOCIETY, INC., 154 Nassau Street, New York City.	NATIONAL MUNICIPAL LEAGUE, 309 E. 34th St., New York City.
CIVIL SERVICE FORUM, 1756 46th St., Brooklyn, New York City.	NATIONAL STATE ASSN., 644 Drexel Bldg., Philadelphia, Pa.
NATIONAL ASSN. FOR CONSTITUTIONAL GOVERNMENT, 716 Colorado Bldg., Washington.	VOTERS' EDUCATIONAL LEAGUE, 524 First Avenue, New York City.

DIVISION V

MUNICIPAL GOVERNMENT

CITY POLITICS

BY CLINTON ROGERS WOODRUFF

HONORARY SECRETARY, NATIONAL MUNICIPAL LEAGUE

NEW YORK CITY

Mayor Walker's Resignation.—In a scathing letter to the Governor of New York, Judge Seabury recommended the removal of Mayor James J. Walker of New York. He said: "This record is presented to you by me in my individual capacity as a citizen of the State of New York and not as a representative of, or as counsel to, the Joint Legislative Committee. My duty as counsel to this committee has been to adduce the facts that could be ascertained. That duty I have performed. I submit the record to you, as I did the record in the Farley case, not as formal charges, but for your information, so that you may determine what shall be done." The Governor summoned the Mayor to appear before him and answer charges. There were twelve hearings which were suddenly terminated by the Mayor formally resigning in September, saying, "Shall I permit myself to be lynched to satisfy prejudice or political ambition?" He quit, said the Mayor, because he "was being subjected to an extraordinary inquisition." "Instead of an impartial hearing, the proceedings before the Governor developed into a travesty, a mock trial, a proceeding in comparison to which even the practise of a drum-head court-martial seemed liberal." Thus was brought to a climax the long and bitterly fought inquiry into New York City affairs conducted for the Hofstadter Legislative Committee by Samuel Seabury.

Mayor McKee.—Joseph V. McKee, president of the Board of Alderman, automatically succeeded as Acting Mayor and in one week did more to damage the reputation of Walker than a year's investigation. Within that time he cut his own salary from \$40,000 to \$25,000 and cut department heads' salaries down to \$12,000 a year, saving \$151,000 immediately. He announced a \$2,000,000 future saving in rapid salary cuts, but added he wouldn't cut anybody getting less than \$2,000 a year. He organized the police force for getting down to work at a quick census of all unemployed, so that the city would know how much relief would be needed during the winter. He secured a new \$15,000,000 short-term loan for the city at a half per cent. lower interest than the city has been able to get from the bankers recently. He broke up a ten-year-old monopoly one firm had on the printing of election ballots, forcing the giving of the contract to the lowest bidder, and saved the city \$49,760. These and sundry other reforms and changes were made, but they did not secure his election to the unexpired term, that going to Surrogate O'Brien, the Tammany candidate. Despite the fact that McKee was not a candidate for Mayor, he received 232,501 votes at the November elections, the voters writing his name on the ballot. His term as Acting Mayor ran to Jan. 1, 1933.

Samuel Seabury, counsel to the joint legislative committee investigat-

ing the government of the City of New York, was a former Justice of the Supreme Court of New York, a former Judge of the State Court of Appeals, and in 1916 he was the Democratic candidate for Governor. Judge Seabury emerged in 1930 from his retirement to attain a position almost without parallel in the history of American politics. As Referee of the Appellate Division Inquiry into the Magistrates' courts, his exposures shocked an indifferent New York public. He was then appointed by Governor Roosevelt to investigate charges of misfeasance against District Attorney Thomas C. T. Crain. Before that was completed the state legislature passed a resolution for a city-wide investigation on the promise of legislative leaders that Judge Seabury would be named counsel to the committee. He thus became clothed with the power of the judicial, the executive and the legislative branches of the State government. In carrying out what John F. Curry, the present leader of Tammany Hall, declared under examination by Judge Seabury to be a "crucification" of Tammany, he forced the Governor to consider a definite break with Tammany and call the legislature into extraordinary session, after the Court of Appeals had decided that the resolution appointing the legislative committee should be changed to a statute bearing the Governor's signature. The statute, which Judge Seabury wrote, grants full immunity to witnesses testifying before legislative committees, with the alternative of perpetual sentences to jail at thirty-day intervals. An amendment to the conspiracy section of the State's criminal code, passed simultaneously, extended the same power to prosecutors. Lawyers call the two Seabury measures the greatest corrective influences ever written into the bribery laws. His consistent victories in every court action by which Tammany sought to oppose the progress of his investigations caused a halo of invincibility to grow up in New York about Judge Seabury.

Removal of Sheriff Farley.—Prose-

cutor Samuel Seabury of the Legislative inquiry into New York City scandals (*THE AMERICAN YEAR BOOK*, 1931, p. 131), charged that Thomas M. Farley, in the two years he was Sheriff of New York County, had withheld \$15,000 in interest on litigant funds left in his trust; had surrounded himself with incompetents; and, most important of all, was unable to account for a personal fortune of \$357,000. Governor Roosevelt, after a public hearing, removed him. In the course of his examination the Governor said: "You see, Sheriff, my trouble is this: Every time we run down one of these individual items we find either that it has been deducted already in making up the total of \$357,000 or else it has been added to the total known assets . . . and it still leaves a discrepancy of somewhere around \$250,000 during these years, 1925 to Oct. 8, 1931."

Bipartisan Judges.—On September 29, the Tammany and Republican organizations of the First Judicial Department (New York and Bronx Counties) created a sensation by making joint nominations, not only of Judge Lydon who had served creditably a term of fourteen years on the Supreme Court bench, but also of Senator Samuel H. Hofstadter, a Republican, and City Court Justice Aron Steuer, a Democrat. Senator Hofstadter was chairman of the legislative committee which investigated the Tammany administration in New York. That committee has not finished its work nor made its report. Without the Tammany endorsement, no Republican could be elected. Justice Steuer is the son of Max D. Steuer, one of the closest advisers of the leader of Tammany Hall. His nomination was equivalent to election; he needed no endorsement from the Republicans.

Roosevelt and the Reformers.—Governor Roosevelt, in the most caustic language of his four years as Chief Executive of New York State refused the request of John Haynes Holmes and Rabbi Stephen Wise, for the removal of Sheriff James A. McQuade, of Kings County,

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and John Theofel, chief clerk of the Queens County Surrogate Court, and both Democratic field marshals in Greater New York. Mr. Roosevelt's letter to the two officials of the City Affairs Committee, which repeatedly has sought the ouster of Tammany and allied officials, bluntly expressed the Executive's doubt of the sincerity of the two clergymen. "You formally demand," he said, "that the Governor, acting on allegations made by you, determine without further questioning that the Chief Clerk is guilty. This is a time of stress and of much hysteria in all parts of the Nation, and it is my belief that at such a time one of the first duties of good citizenship is to sustain the American principles of justice. One of the principles is that no accused person be convicted without opportunity to be heard. Citizens will recognize that you two gentlemen have deliberately requested the Governor to disregard this fundamental of justice. Your second letter asks the removal of the Sheriff of Kings County. Your request is peremptorily denied for the clear and cogent reason that you seek to establish a new form of government utterly repulsive to the representative form under which we live."

SEATTLE'S MUNICIPAL CAMPAIGN

Seattle had a very bitter municipal campaign in the Spring of 1932. In 1931 Mayor Edwards was recalled and Robert Harlin elected by the Council to succeed him. It was the judgment of capable observers that Mayor Harlin had done well. His chief opponent was John F. Dore, an attorney who had never previously shown any public activity and whose specialty had been for many years criminal law. Mayor Harlin succeeded in getting through the primaries, but was very badly beaten by Mr. Dore through his appeal to the discontented and the unemployed. Mr. Dore exercised no restraint in the matter of promises. Since his election he has done much to disappoint the group mainly responsible for his election. He has made an attempt to perform some of his promises, al-

though they seemed impossible of performance. By threats of removal and the exercise of his power over the departments directly under him, he made considerable progress in the way of reduction of governmental expense, although he received little assistance from the Council in this, and it has not yet been determined just how successful his efforts will be. When he ran for mayor he threatened to throw the municipal railway into the hands of a receiver, and to cancel the contract the City has with Stone & Webster. Up to the present time he has done neither. He has started an action to determine whether or not the wages of the men are a first lien upon the income, or whether, as stated in the contract, the bonds are a first lien, but this has not yet been determined upon its merits.

When the unemployment situation became so acute as to require extensive public relief, a commission appointed for that purpose determined upon the policy of extending that relief through an organization of the unemployed which had been already perfected. In this way it was hoped to unite the work being done by organized labor and by this unemployed organization, with that to be done at public expense. This is now thought to have been a great mistake. It furnished a treasury to the unemployment organization, which promptly developed political activities. At the time of Mayor Dore's election, it claimed in number 18,000, and it went down the line for Dore. As events have since developed, he has been forced into considerable opposition to it, and it is by no means so enthusiastic for him as it was. Its political power was evidenced in the State primaries, when it influenced the members to go into the Democratic primaries and nominate therein certain radical or ultra progressive candidates. Mayor Dore has adopted a plan of hiring the City Auditorium every month or so, inviting in his supporters and delivering to them one of his characteristic harangues, denouncing his particular adversary at the time,

whether it be the City Council, or a Republican candidate for governor. His conduct since election, however, has been a pleasant surprise to the conservative group, and especially to the property group, which is exceedingly interested in a reduction of governmental expense. It did seem as if nothing but high-handed methods could possibly accomplish any reduction there, so strong were the Civil Service employees and the labor groups.

CLEVELAND

Having abandoned the City Manager form of government in 1931 (see *THE AMERICAN YEAR BOOK*, 1931), Cleveland at the spring election 1932 elected the Democratic candidate Daniel Edgar Morgan, who had been prosecutor of Cayuga County, over William Rowland Hopkins, who had been City Manager since 1931. Mr. Morgan is the first Democratic Mayor to be elected in Cleveland since the time of Newton D. Baker, but thus far he has not demonstrated the superiority of the Mayor form over the city manager form and the Spoils System has been dominant.

PITTSBURGH'S MAYOR ACQUITTED

Mayor Charles H. Kline, Mayor of Pittsburgh, was indicted for malfeasance in office; also Bertram L. Succop, one time director of the city's Department of Supplies, whom Mayor Kline dismissed as soon as the investigation into municipal food-buying loomed. A grand jury found that food contracts had not been let to the lowest responsible bidder, that contracts had been given to firms under fictitious names, that contemplated purchases of over \$500 had not been advertised as required by law, that purchases had been made without municipal authorization. Mayor Kline declared that "the charges are only technical," a contention that was subsequently upheld on a motion for a new trial by the trial judge from Philadelphia, presiding over the Butler County Court on a change of venue. The conviction of Succop was upheld.

VINDICATION OF ATLANTA'S MAYOR

While in Paris in 1931, Mayor Key of Atlanta, made a pronouncement that in his opinion Prohibition had proved a failure. This was resented by many Prohibitionists in Atlanta, and under the leadership of a local champion of Prohibition, a movement was set on foot to recall the Mayor from his office, and a petition to that effect was circulated. After some months enough signatures were given to the recall to make an election necessary though there were many charges and counter-charges of fraud in obtaining the signatures, and many forgeries proved. At the election Mayor Key was vindicated by a large vote and retained in his position as Mayor.

DEFEAT OF SOCIALISTS IN READING

The Socialists in Reading were defeated in 1931 by the Fusion ticket of Republican and Democrats (see *THE AMERICAN YEAR BOOK*, 1931). This Fusion group is now in power, and with all the difficulties it has to meet in these trying times, it is giving a very excellent administration. Its policies are sane and sound, and it is doing its best to give all round satisfaction and to keep down the cost of government. It has its critics from the discontented and Socialists, who want to get back, but this is to be expected.

MILWAUKEE

Daniel W. Hoan, Socialist Mayor of Milwaukee, was first elected City Attorney when Milwaukee, tired of the Rose regime, went Socialist and elected Emil Seidel as Mayor. That was before the War. Hoan succeeded Seidel and has been continued in office ever since by a large non-Socialist vote. Hoan has, on the whole, made an excellent Mayor. Under his administration the city has been singularly free from corruption and political jobbery. His administration has been sane, constructive, and on the whole forward-looking and economical. The Police, Fire and Health Departments have

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been ably and efficiently administered. Crime is negligible and most of the people are said to be happy.

TRENTON

Frederick W. Donnelly, who served as Mayor of Trenton for a period of 20 years, resigned on account of the pressure of his private business in-

terests. Trenton which is operating under a commission form of government may retain a Mayor indefinitely as it has in the case of Mayor Donnelly because of his outstanding services. His frequent election as a Democrat in a Republican city was an evidence of the efficiency of his administration.

TYPES OF MUNICIPAL GOVERNMENT

BY CLINTON ROGERS WOODRUFF

HONORARY SECRETARY, NATIONAL MUNICIPAL LEAGUE

SAN FRANCISCO

New Charter. — San Francisco's new charter went into force and effect Jan. 8, 1932. It has resulted to date in savings to the taxpayers on their tax bills of over \$2,000,000. In these first months of operation definite results have been: elimination of legislative control of, and interference with, a large volume and variety of administrative matters; development of an executive budget, with the mayor as budget authority, which showed for the first time in the city's recent history a completely detailed set-up of proposed expenditures and estimated revenues to meet such expenditures; establishment of single responsible financial control through the office and powers of the controller established by the new charter; establishment of business-like management and control of municipally owned and operated utilities under a public utilities commission and its executive officer, the manager of utilities, vested by the charter with broad powers to carry out their functions; establishment of procedure for collecting large amounts of delinquent revenues.

Municipal Developments. — As to the outstanding developments in the local municipal field during the current year are the following: adequate provision for unemployment relief, without increase in the tax-rate, by means of a budget appro-

priation of \$1,000,000, a bond issue overwhelmingly approved by the people amounting to \$6,500,000, and "voluntary contributions" of municipal employees and officials on the basis of a graduated percentage of pay, estimated to produce over \$1,200,000; despite a provision in the new charter preventing the reduction of salaries and wages below the rate paid to any incumbent as of January 1, 1932, and despite various increased appropriations for unemployment relief and other social services, as a by-product of the depression, the expenditure program was curtailed to the extent that the tax rate for 1932 was held to \$3.96, a reduction of 8 cents below the rate of 1931, and this, too, despite a falling off of approximately \$6,000,000 in assessed valuation of tangible property; the successful efforts of organized city employees, through the San Francisco Federation of Municipal Employees, to keep off the November ballot two initiative charter amendments designed, respectively, (1) to take out of the charter the restriction that salaries and wages as of Jan. 1, 1931, could not be reduced and concurrently to provide for reductions averaging 7.4 per cent, and (2) to provide for contribution by members of the fire and the police departments toward the cost of their pension systems, these two amendments estimated as involving a retrenchment in next year's

TYPES OF MUNICIPAL GOVERNMENT

budget of over \$3,500,000. Over 38,000 signatures (less than 24,000 were necessary) were secured on each of these petitions. The method used by the Federation of Municipal Employees was, by argument or coercion, to have individual signers of the petition sign slips withdrawing their names from such petitions, which withdrawals were recognized by the registrar of voters on the basis of an opinion received by him from the city attorney. The only California cases in point deny the right of signers to withdraw after a petition has been filed. The matter has been taken to the Supreme Court of the State and the proponents of the two initiative measures are confident that the Court will order the registrar of voters to certify the two petitions as sufficient.

Bridge Projects.—Although not strictly confined to San Francisco as a municipality, the two bridge projects have almost reached the point of starting actual construction operation. The Golden Gate Bridge to connect San Francisco with Marin County to the north, financed by a \$35,000,000 bond issue voted by a district composed of five counties, including San Francisco, has moved to the point where an initial block of bonds has been sold and nearly all contracts have recently been awarded. The San Francisco-East Bay Bridge, connecting San Francisco with Oakland and Alameda County to the east, estimated to cost \$72,000,000 and to be financed by the sale of revenue bonds issued by the California Toll Bridge Authority, a body officially created for the purpose of this project, has been advanced by the recent authorization of \$62,000,000 of financing through the Reconstruction Finance Corporation. Minor legal details obliging the State, through its Highway Department, to take care of maintenance and operation charges of the bridge remain to be cleared up by State legislation.

INTERNATIONAL CITY MANAGERS ASSOCIATION CONFERENCE

Nearly 250 city managers, gov-

ernmental researchers, department heads, mayors, councilmen, and students of government attended the nineteenth annual conference of the International City Managers' Association held jointly with the conference of the Governmental Research Association in Cincinnati, Oct. 24-26. All previous attendance records were broken. Methods of effecting economies in local government and the problem of collecting sufficient revenues to carry on municipal activities were discussed from all angles. Considerable attention was given to the importance of maintaining sustained citizen interest in government, and public administrators and councilmen were urged to take advantage of the current citizen interest in government and keep the public fully informed of all public affairs. It was pointed out that if citizens knew how much service they were receiving for their tax dollar they would not be so likely to be influenced by the widespread propaganda against government. The officers elected for the coming year were: C. A. Dykstra, city manager of Cincinnati, president; W. F. Day, city manager of Staunton, Va.; C. C. Ludwig, city manager of Albert Lea, Minn., and V. E. Smitham, city manager of Wichita Falls, Tex., vice-presidents. In addition to these new officers, the executive board includes: O. E. Carr, C. A. Bingham, C. M. Osborn, John N. Edy, R. W. Rigsby, and Charles A. Carran.

COUNCIL—MANAGER CHANGES AND ADDITIONS

Adoptions during 1932: Paducah, Ky.; Harbor Springs, Mich.; Elmira N. Y.; Minot, N. D.; Port Arthur, Tex.; Williamsburg, Va.

Abandonments.—Orange, Mass.; Sulphur, Okla.; Windsor, Vt.; Lima, Ohio.

Cities Retaining Manager Plan.—Saranac, N. Y.; Niagara Falls, N. Y.; Pacific Grove, Cal.; Ashtabula, Ohio; East Cleveland, Ohio.

Cities Voting on Manager Plan but Defeated.—Stamford, Conn.; Dumont, N. J.; Ada, Okla.; Winchester, Ky.; Catlettsburgh, Ky.; Coffeyville, Kan.

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MUNICIPAL FUNCTIONS

BY CLINTON ROGERS WOODRUFF

HONORARY SECRETARY, NATIONAL MUNICIPAL LEAGUE

POLICE PROGRESS

Radio was extensively used in 1932, more than in any other year, but it was initiated in Detroit in 1922. Police schools are growing rapidly in number throughout the country, but these were established in 1908. What is of importance is the fact that the universities and colleges are beginning to take notice. In two of the colleges and two universities of California, courses in police administration are being offered to the students. In the Junior College at Los Angeles, a complete, well-founded course is offered for the training of patrolmen, utilizing only the materials that are available in the College. In the Junior College at San Jose, however, not only do they offer all that the College formerly offered in order to prepare students for police service, but they have obtained the services of a trained policeman with excellent academic background, who is now engaged in training young men for police service. At the University of Southern California, through its courses in police administration in the Public Administration Division of the Department of Political Science, and in the University of California through the offices of the Bureau of Public Administration, courses in police administration are being offered and some extensive research is being undertaken.

POLICE TRAINING

New York Schools.—A report of the above title, recently issued by the New York State Conference of Mayors and Other Municipal Officials, gives the following information:

"Fourteen zone police training schools were in operation in New York State during 1931-32. New York City has a school for its own department. The State Training

School for Police is operated by the State Police for troopers and any other police officials who desire to attend. Twenty-three municipal training schools, of which twelve were in operation during the year, are under the supervision of an Advisory Council on Police Training, representing the New York State Conference of Mayors, the State Police Association and the State Police School. The economic depression materially cut down the number of municipalities operating their zone schools this year. The cost of operating the training school for instructors was shared by the Conference and the State Police School. The expenses of operating the zone schools were paid by the Conference and the municipalities having zone schools. The Conference share was made available through a grant from the Spelman Fund of New York. The attendance at the zone instructors' school and the twelve municipal zone schools, exclusive of New York City, was 2,014. Certificates of attendance were presented to 1,972 policemen and 26 civilian candidates for police posts. This includes only a partial record of attendance at the Buffalo school. A total of 100 municipalities, the sheriff's office of three counties, the district attorney's office of one county, and a state hospital were represented at the municipal schools."

Training Police Chiefs.—It has been realized that in addition to the police training schools that have been held annually for four years for the policemen of New York State municipalities a higher grade of instruction should be provided for chiefs of police. For this purpose, an Institute for Chiefs of Police was held in Troy, N. Y., under the joint auspices of the New York State Association of Police Chiefs and the New York State Conference of Mayors.

MUNICIPAL FUNCTIONS

The Institute provided a three-day course of instruction in the administrative duties of police chiefs. There were registered at the Institute 124 chiefs or deputy chiefs of police, representing 97 New York State municipalities and other organizations.

POLICE RADIO

A new radio alarm system for the Police Department of New York City was placed in operation Feb. 23. This service affects the Borough of Manhattan only, at present, but it is to be extended soon to the four other boroughs. Police cars to the number of 220 have been equipped with receiving sets enabling headquarters to transmit immediately to them any orders and directions for proceeding to scenes of crime and disturbance. When the system was inaugurated in the office of the Police Commissioner the Mayor, speaking through the microphone, gave orders to three cars in different parts of the borough to report to headquarters, which they all did within one minute to 50 seconds. Going to the broadcasting room, he then witnessed the receipt of a call for police help from an apartment house where a burglary was being attempted. A patrol car in that vicinity was notified by radio, and in five minutes reported back that the prospective burglary had been frustrated.

POLICE COOPERATION

The question of police cooperation in and around large cities is a problem of increasing importance and difficulty, Bruce Smith's *A Regional Police Plan for Cincinnati and Its Environs*, published by the Institution to Public Administration, 261 Broadway, details what has been done along these lines. There is a clear statement of the situation and the possibilities of cooperation between existing police agencies in the Cincinnati metropolitan area. While Cincinnati may have some problems of its own, generally speaking the main features are the same as in other large communities.

POLICE HOME RULE IN KANSAS CITY

After many years of agitation, Kansas City has police home rule. The change came suddenly and, to most people, unexpectedly. It came not through legislation, on which efforts had been centered, but through a decision of the Supreme Court holding the police statute unconstitutional. Many citizens doubt the wisdom of local control of police. Regardless of its wisdom or unwisdom, however, it is now a fact, and Kansas City has the opportunity to see what kind of a department it can run without state regulation or interference. One immediate result of home rule will be the removal of friction between the police department and other offices and departments of the city government. Disputes over police appropriations, which have resulted several times in appeals to the courts, cannot occur, nor can charges of lack of cooperation in enforcing ordinances and in prosecuting offenders be made. Responsibility and authority are now centralized in the city manager and through him in the council. There can be no more shifting of responsibility to the State Capital.

Police expenditures have been a chief source of disagreement between the city administration and the police department. This has occurred with great regularity for many years. Until now, the police department has been able to demand whatever sum it deemed necessary from the city treasury and compel payment. The city manager has stated that the department will be operated efficiently for not more than \$1,000,000 a year. Chief Vollmer's and the police survey's report can now be put to the test. The whole hope of the new arrangement is that now the city itself has all authority and all responsibility; the people of Kansas City, not the people of the State, have the final word as to what kind of police Kansas City is to have.

CRIME IN CITIES

The steady extension of the crime registration area by the U. S. Bu-

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reau of Investigation, Department of Justice, indicates that the police departments of the country are determined to learn how much crime there is and how it is distributed. The second quarterly bulletin of the Uniform Crime Reports (1932) shows that 1,437 cities are now reporting offenses known to the police in accord with a uniform crime classification. In addition, many counties and United States territories are also filing monthly reports. Ninety-five per cent of all cities over 50,000 population are now in the registration area, and 89 per cent of all cities having a population between 25,000 and 50,000. This impressive growth has been accomplished after only 2½ years of operation. The International Association of Chiefs of Police, through its Committee on Uniform Crime Records, which devised, organized, and installed the system in the first instance, is continuing its efforts to improve crime reporting and to extend the registration area.

POLICE ITEMS

Chicago.—Bruce Smith's efforts to rehabilitate the Chicago Police Department are bearing some fruit. Some sixty-odd of the recommendations appearing in "Chicago Police Problems" have already been installed by his special staff in Chicago. Of special interest is the structural reorganization which went into effect on August 1.

Cincinnati.—The extensive police revisions and changes directed by John B. Blandford, Director of Safety in Cincinnati, deserve some special comment. Mr. Blandford has gone far toward installing the recommendations incorporated in past police surveys in Cincinnati and has undertaken one or two experiments in the distribution of motor equipment and in crime prevention which hold promise of significant results.

New York.—When the New York Police Department's annual report for 1931 appeared, Police Commissioner Mulrooney emphasized the fact that there had been an actual increase of certain crimes of vio-

lence during that period. New York, like other cities, has become accustomed to having such unpleasant facts either suppressed altogether or explained away. Commissioner Mulrooney, however, set what is a new pattern by frankly stating the situation and emphasizing the need for its correction. This courageous action by the police commissioner completely disarmed any public criticism which might have been levelled against the police department and shifted the emphasis over to the method of correcting it.

REDUCTION OF FIRE LOSSES

Means and Trends.—A year ago there were mentioned three prospects for progress in the reduction of fire losses in the United States, as follows: (1) An increasing trend toward the adoption by municipalities of laws representative of good and safe practice in building construction, more effective control by municipalities of fire hazards through the formation of fire prevention bureaus and the adoption of suitable fire prevention ordinances; (2) increased activities by fire departments in salvage work; (3) the development of short courses for firemen at many state universities. During 1932 a number of communities and states have been active along these various lines and in spite of the necessity for economy in public expenditures these features have not been neglected. This necessity for economy has, however, resulted in a number of cities, large and small, in a reduction in the fire department force, and in some cases the discontinuance of certain fire companies. Usually this has been done with good judgment and in a way which has not seriously jeopardized public fire protection.

Lessons From Fires.—The fire in the Cunard steamship pier in New York City, and other fires of somewhat similar character, have drawn attention to the need for a better system of fire stopping in the construction of the under-deck section of these long piers, and of some

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means of effectively fighting fires in these inaccessible locations. Modern pier construction incorporates fire walls or fire breaks at intervals of about 250 feet both above and below the pier deck, with automatic sprinkler protection where practicable. The fire in the Riverside Church in New York, following among others that in the Sherry-Netherlands Tower, demonstrated the necessity for greater fire prevention safeguards for buildings under construction. Especial attention has been directed to the desirability of using so-called "fire-proofed lumber" for temporary scaffolding, as in the practice in the erection of some buildings in New York.

Pipe Line Safeguards.—The National Board of Fire Underwriters prepared, with the cooperation of industry, definite requirements for safeguarding the fire hazard of pipe lines for the transportation of petroleum products, and of oil burners for use in stoves and ranges originally designed for solid fuel. In developments along these lines which tions on these subjects, there has been laid the foundation for future developments along these lines which will assure reasonable progress in their early development and fire prevention of a real and practical sort.

FIRE FIGHTING

The improvements that have been effected in fire-fighting methods were set forth in a bulletin published by the Federal Board of Vocational Education, entitled "Fire Fighting—An Analysis of the Fireman's job, with Suggestions as to the Organization and Operation of Training." The establishment of the training programs advocated in this bulletin will, it is expected, materially reduce the daily money loss of \$1,500,000, and the daily loss of 30 lives, caused by fires in the United States. It is important that firemen should be trained not only in the actual operations of handling fire hose and ladders, and other apparatus and equipment necessary in fighting fire effectively and efficiently, but also in what may be termed the tech-

nical aspects of the job. Wherever classes for firemen are organized through a state plan, the application of Federal funds for the salaries of teachers can be approved. The use of Federal funds for supervision and teacher training, when conducted in harmony with the state plan, is regarded as likewise legitimate. Details are supplied by the Federal Board for Vocational Education at Washington.

MEETINGS OF MUNICIPAL ORGANIZATIONS

State Municipal Leagues.—For the first time there was held a national congress of state municipal leagues in Chicago on November 10, 11 and 12. Not only secretaries of the state municipal leagues were brought together, but also officers of most of the existing state municipal leagues, in an attempt to plan certain national programs regarding municipal matters—particularly regarding unemployment relief.

International Congress.—The President of the United States designated representatives of the American Municipal Association to represent the United States government at the Fifth International Congress on Local Government held at London in May. The American Municipal Association is the only American member of the International Union and this recognition by the President of the United States was something of more than national interest.

American Municipal Association.—Aside from its routine services the American Municipal Association has a large research program dealing with problems in the local government field. The Association has also taken a leading part in the representation of cities before the Reconstruction Finance Corporation under the terms of the new Federal law, and is endeavoring in all ways to serve and represent cities of the United States as they direct their activities through the state municipal leagues.

REDUCTION OF MUNICIPAL EXPENDITURES

The International City Managers'

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Association published a pamphlet entitled "How to Reduce Municipal Expenditures. A Check List of Constructive Economies." The pamphlet listed 295 suggestions for economy chiefly in city government. Most of them were methods which had been used in some city. All of them were "constructive" in that they aim at reduction in cost without crippling the necessary service of government, and all were directed toward the application of sound principles of administration instead of arbitrary cuts in expenses which sometimes cost more than they save. The entire list probably would not apply in any one city. Some would require charter amendment or legislative enactment. The majority, however, could be put into effect by council or administrative order.

MUNICIPAL AUDITORIUMS

A 34-page study by Edna Trull, of the Municipal Administration Service, under the title "Municipal Auditoriums," presents and analyzes the basic physical and financial data for auditoriums in over 100 cities, and stresses the practical problems of administration. Among the statistical tables are those showing: Management of 79 municipally owned auditoriums by population groups; agencies fixing rental fees; financial policies of municipally owned auditoriums, and types of auditorium buildings. Material collected from 119 cities ranging in size from less than 1,000 to more than 900,000 population in 37 states is naturally varied, but the number of municipal auditoriums necessitates their consideration as part of American municipal life, and such consideration reveals that the oldest and newest, the largest and smallest, have something in common. Many of them have decided that the existence of a municipal auditorium warrants a steady charge against the treasury. The advantages, to be sure, are likely to be among the intangibles. Only the large and very flexible buildings are covering their cost with receipts. This is not, however, the major factor. A public building of

any size that is attractive and frequently used and is the social civic and cultural center of the town deserves, in Miss Trull's opinion, a recognized place on the debit side of the financial ledger. If its construction makes it a recreational center, its value is increased.

MUNICIPAL STANDARDS

The purpose of the National Committee on Municipal Standards is to encourage and generally advise in the establishment of standards in the conduct of municipal government. It has brought about the establishment of the Committee on Uniform Street and Sanitation Records which represents the International City Managers' Association, International Association of Public Works Officials, American Road Builders' Association, The American Society of Municipal Engineers, American Municipal Association, American Public Health Association, Governmental Research Association, National Municipal League, Municipal Finance Officers' Association, and American Society of Civil Engineers. This Committee is engaged in standardizing the work units employed for measuring work done by public works departments throughout the country, standardizing cost accounting work, assisting cities in establishing unit cost standards, and improving generally public works administrative methods. This Committee has also organized the American Road Builders' Association, International City Managers' Association, National Committee on Municipal Standards, American Society of Civil Engineers, American Society of Municipal Engineers, International Association of Public Works Officials, Municipal Finance Officers' Association, American Municipal Association, and Governmental Research Association. The Committee is also engaged in a project of setting up standards in the field of street maintenance economics by which cities may know if their street maintenance work is being performed economically, when it is more economical to reconstruct than to maintain the streets, and other criteria of ef-

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ficient operation. The National Committee on Municipal Standards advises with various national organizations of municipal officials and research agencies in the establishment of standard methods or model procedures. Officials of cities that have installed the public works records system designed by the Committee on Uniform Street and Sanitation Records discussed the practical benefits of the system at the annual conference of the International Association of Public Works Officials' meeting in Pittsburgh, September 28 to October 1. In addition to the topics of interest to those in charge of such operations as municipal engineering, street and catch basin cleaning, sewers, maintenance of streets, and maintenance of equipment, the subject of "Economic Readjustment and Its Relation to the Public Works Official" was discussed.

SPELMAN FUND

The objective of the Spelman Fund in the field of public administration has been described as improvement of the technical aspects of public administration as a means of promoting the general welfare. This broad purpose must find expression in concrete specific activities. The appropriations of the Fund fall into two broad classes; first, those in support of activities for an improved exchange of technical information and experience, and second, those directed toward discovering or demonstrating improved techniques or methods of organization. To facilitate exchange of information and experience, the Fund during the year has cooperated with several associations of public officials. Funds have been made available to strengthen the secretariats of the American Association of Public Welfare Officials, of the American Legislators' Association and of the American Municipal Association, a federation of the state leagues of municipalities, and to assist the Bureau of Public Personnel Administration which serves as the secretariat of the Civil Service Assembly. An appropriation was also made to the League of Min-

nesota Municipalities. In the case of each of these organizations, the new funds provided will aid in bringing to all members of these organizations the best existing practices and will encourage initiative in the development of improved administration.

Since these and other organizations of public officials face many problems of a similar character, a Public Administration Clearing House was established, with Spelman Fund support, to serve as an active agency in bringing to the study of common problems the various interests that are concerned with them, and to create a more general source of information on matters of public administrative policy and practice than had hitherto existed in this country. This Clearing House, at Chicago, has been greatly aided in its work by the recent location in that city of the headquarters of several of the organizations of public officials with which it may cooperate.

SUSPENDED MUNICIPAL PROJECTS

The American Society of Civil Engineers, through its local sections, collected data in regard to state and municipal projects that have been suspended on account of difficulties in financing at reasonable rates of interest. Disregarding Federal public works, the normal annual program of the state and municipal public works has for the past ten years been between \$2,500,000,000 and \$3,000,000,000. This year public works of this class will not aggregate more than \$800,000,000 it was estimated. The result has been that nearly 2,000,000 people who would normally find seasonal employment on public works have not found work and that unemployment has increased at an alarming rate.

In the supply of industries, such as steel and cement, the prevalent low rate of operation is partly due to this cause, and other industries have suffered greatly through the loss of purchasing power by these two million workers and their dependents totalling over 8,000,000 people. One of the foremost steps in

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the Federal program for a return to normal conditions was the passage of the amendments to the Reconstruction Finance Corporation Act, popularly known as the Wagner Bill, which provides for loans to states municipalities and political subdivisions for the construction of self-liquidating projects. The survey conducted by the Society showed state and municipal projects aggregating

\$1,400,000,000 ready to go and others aggregating \$900,000,000 that could rapidly be made ready. Roads, streets, public buildings, charitable institutions and recreation facilities, except where self-liquidating, were omitted from this list, and it is believed that the remaining projects were self-supporting or could be made so by local legislation.

MUNICIPAL MISCELLANIES

BY CLINTON ROGERS WOODRUFF

HONORARY SECRETARY, NATIONAL MUNICIPAL LEAGUE

BILLBOARDS

Highway Menace.—The highest court of appeals in New York State by its decision on July 19 in *Perlmutter v. Green* (259 N. Y. 327), administered one more cut to the outdoor advertising men's claim that the right to shout at people upon the public highways through a billboard is a constitutional attribute of private property. Incidentally the Court referred to the billboard as a "quasi-nuisance." *Perlmutter*, a furniture dealer, in 1930 leased private land near the Poughkeepsie end of the new Mid-Hudson Bridge and started to erect a large billboard to advertise his business. Whereupon Col. Frederick Stuart Greene, Superintendent of Public Works of the State, started to erect a lattice or screen on state land in front of the billboard to cut off a view of the board from motorists crossing the bridge, and thus making the board valueless. Justice Bleakley of the Supreme Court granted an injunction against the erection of the screen, holding that the state had no "right to build screens along its highways, thus shutting out the view of adjacent owners or the view of travelers upon the highway of adjacent property, unless the screens are erected in furtherance of a highway purpose." He declined to find that the screen had a highway purpose, hold-

ing that the claim of the state that the billboard would be a distraction at a dangerous traffic spot was an afterthought, and that the real purpose was esthetic. The Appellate Division of the Supreme Court (234 App. Div. 896) sustained the lower Court, saying in effect that while state officials might erect directional and traffic signs even though they obscured advertising signs, they might not erect a screen merely to blanket a lawful sign. "The purpose of the defendants, if carried out, is to prevent a lawful use of private property." The Court of Appeals in an opinion rendered by Chief Judge Pound and concurred in by all the Court, swept away completely the reasons thus adduced to paralyze the hand of the State Superintendent. In dismissing the furniture man's case and in sustaining the right of the Superintendent of Public Works to erect the screen, Judge Pound said: "He may act reasonably in his discretion for the benefit of public travel in screening a billboard at a dangerous curve when by its enormity such a structure may divert the attention of the motorist from the road. He then interferes with no property right of the adjacent owner and he should not be interfered with by the courts. If, incidentally, the approach of the road is improved by shutting off the view of the bill-

board, so much the better. We deal with the act and not the motive. An act, lawful in itself and not done with malice, will not be restrained, nor will the courts assume the management and control of state highways."

Tobacco Advertisements.—Another outstanding decision was that of the U. S. Supreme Court in the Utah case, *The Packer Corporation v. State of Utah* (285 U. S. 105) Feb. 23, 1932, sustaining a Utah statute prohibiting the display of tobacco advertisements on billboards and street car placards, the ground being that advertisements thus thrust upon the public without their volition are in a class by themselves and may be made the subject of special regulation differing from newspaper advertisements.

Outdoor Advertising Regulation.—Among the important developments in billboard repression is to be noted a fresh recognition in New York of outdoor advertising as a proper source of revenue, and a real, though unsuccessful effort by a committee of the New York Senate, to tax all outdoor advertising in the State. This has been suggested many times before but received no real consideration until this year. The zoning movement and growing appreciation of parks and parkways help with this; the abandonment by the Organized Outdoor Advertising Industry of its former claim that all regulation of it should be self-regulation. It now professes to be engaged in drafting legislation. The Industry's statements about this legislation make it clear that it will not satisfy the public, but the step marks an acceptance by the Industry of the idea of legislation, i.e., regulation of the police power of the State.

Zoning.—The National Association of Real Estate Boards, has recommended to the various executives, city and state, and the various planning and zoning commissions that immediate study be made of the billboard problem, both with reference to country and state areas, to prevent the destroying of the beauty spots of the open country and the

discontinuance of unsightly conditions in any of our cities. The National Association also has instructed its committee on city planning and zoning immediately to commence investigation as to the possibilities along this line, and the necessary legislation toward making it effective. This action was based on the recognition that the natural beauty of our country is a public heritage to be conserved; that it is a community possession, and no individual and no corporation had the right to spoil the natural scenic beauty of the land for private profit. The association believes that the indiscriminate use of signboards today retards the development of desirable districts, and tends to destroy values in districts already built up, and such sign boards have become an eye sore to the public generally, and that the time has come when it should be determined whether or not the character, location, extent and maintenance of signboards cannot be so regulated and controlled as to give legitimate opportunity for necessary advertising without the continuance of the present harmful conditions.

AUTOMATIC FIRE ALARM

A fire-alarm that avoids alarming anybody was displayed at a convention of the Fire Protective Association in Atlantic City. It automatically detects a fire and then forces the fire to announce itself in a human voice, which calmly warns people, instructs them how to leave a building, and starts a band playing to help them march out quietly. The apparatus has been perfected by engineers of the Western Electric Company working with the Garrison fire detecting system. Beside the unusual technical features, the use of a voice and a band instead of the traditional gong is based on the findings of modern psychology as to the way people react to emergencies and to different kinds of sound. By means of electrical devices, the system combines an automatic fire detector with a music reproducer which is connected to loud speakers. In

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the demonstration a small flame is placed near the fire detector. A few seconds later the detector responds in three ways. It sends an alarm straight to the firehouse, directing the firemen to the side of the building nearest the fire, while in front of the building itself an arrangement of lights shows them in what particular part of it the fire is located. At the same instant the music reproducer commences playing, and is heard over loud-speakers. Green arrows light up, pointing out the correct route for exit. The record designed for use in a school begins with a flare of trumpets, followed by a distant siren. Then a calm but commanding voice says: "There is a fire emergency, but no immediate danger. You must leave the building. You are drilled in this, and know just what to do. Leave your hats and coats; take your places in line. Steady, now, don't rush. Follow the green arrows."

MOTOR VEHICLE REGULATIONS

The American Automobile Association issued, in 1932, a "Summary of Motor Vehicle Regulation, United States and Canada," prepared by its Legal and Research Department, with the cooperation of the Albert Russel Erskine Bureau for Street Traffic Research, Harvard University. It declared that substantial progress is being made toward uniformity in the basic regulations governing the movement of the nation's 22,000,000 passenger cars. In every state the driver involved in an accident is required to give his name and other information to the driver or occupants of the other car, whether the accident results in personal injury or property damage alone. In most states a formal report of an accident involving personal injury must be filed with the proper official. Regarding registration and licenses the situation is confused, but it is stated that in general a motorist who has complied with the registration and driver's license laws of his own state will have a few difficulties. Speed laws vary from 50 miles an hour in North Dakota to the 25-mile *prima*

facie limit in Missouri. Fifteen states have discarded the fixed speed limit. Overtaking on hills or curves where view is obstructed is prohibited in 34 states and the District of Columbia. Coasting down-grade in neutral is severely dealt with under the laws of 24 states. In 32 states the passing of a street car on the left is prohibited. Eleven states require a full stop before crossing railroad tracks; six others, and the District of Columbia, require a full stop at special stop signs. Parking on the main traveled portion of the highway is a violation of most state codes. The laws of 16 states require that light be dimmed approaching vehicles.

IMPROVEMENT BONDS

The Ohio Supreme Court announced a reversal of its decision in the Allen County sewer bond case. This latest decision upholds the validity of the improvement bonds issued by sewer and water districts and guaranteed by the county. This action is important, since the original decision had cast serious doubt upon the validity of millions of dollars of outstanding municipal and county obligations, and was reported to have practically brought to a standstill nearly all public improvement work of this character in the state. A holder of certain sewer and water district bonds upon which interest payments had been defaulted owing to failure of special assessments to meet district obligations, brought the original action (*Bowman v. Board of County Commissioners of Allen County*). A writ of mandamus was sought to compel the county, named as guarantor, to levy a general tax sufficient to pay off the interest then due. The Supreme Court in its first decision declared that this could not be done, because the work for which the bonds had been issued did not benefit the entire county. This immediately made some \$200,000,000 of such bonds of doubtful validity, and practically held up the sale of additional bonds which several municipalities and counties were attempting to market.

METROPOLITAN AND REGIONAL PLANNING

MUNICIPAL TAXES BY INSTALMENTS

Legislation has been enacted permitting taxpayers of Detroit, Mich., to pay taxes in advance instalments; but as this would throw a heavy burden on the City Treasurer's accounting system besides requiring frequent trips of taxpayers to the City Hall, a special committee of the Council made arrangements with the Detroit banks to handle the payments. Under the plan adopted, each depositor in a 'Taxpayers' savings club agrees to make 50 weekly payments (or other types of instalments) of a specified amount within the year, the total to be the estimated amount of his taxes. Interest at 3 per cent is paid on completed tax club accounts. The depositor may withdraw the balance of his account upon the completion of the club on June 30, 1933, thus being enabled to meet his tax bill. Portsmouth, Va., has a new optional instalment taxpaying plan, devised by City Manager Frank C. Hanrahan, whereby property taxes may be paid in advance in weekly, semi-monthly, monthly or semi-annual instalments, at the taxpayers' convenience, to the city collector, who credits their tax bills accordingly. These payments receive 6 per cent interest, which is deducted from the amount still owed at the end of the tax year. Depositors are given tax deposit books similar to Christmas savings

bank books. In the first 30 days, \$100,000 was produced.

CIVIC BROADCASTS

"Problems of Government in a Depression" and "Constructive Government" were the general themes of a series of radio broadcasts on Tuesday evenings. In the winter of 1931-32 the group sponsoring the series—the Committee on Civic Education by Radio—began its work of presenting broadcasts on political and administrative topics that should be at once popular and authoritative. This Committee was organized by the joint efforts of the National Advisory Council on Radio in Education and The American Political Science Association. It is nonpartisan, and has no special "ism." Municipal government as it daily affects and regulates the lives of the seven million inhabitants of the City of New York, from birth to death, has been the subject of a series of radio broadcasts given by the Municipal Reference Library for three years past. The series in 1932 was entitled "Highlights in Municipal Government" and the topic of each talk was chosen for its timeliness and is devoted to one phase of municipal activity. Each talk showed the functional organization of an office or department and gave a resumé of the actual accomplishments for the past year.

METROPOLITAN AND REGIONAL PLANNING

BY JOHN NOLEN, JR.

NATIONAL CAPITAL PARK AND PLANNING COMMISSION

DECADE OF PROGRESS

Urban Population.—This year much has been said and written about a planned economy and social order. Although thought has matured, there have been few new deeds. Even such well established and proven movements as metropolitan and regional planning, now clos-

ing a decade of progress, have felt the standstill urge just when opportunity for service and further advance is greatest. Stock-taking forecasts a new era of progress. The last Census showed the United States predominantly an urban nation. Moreover, it appears that in 96 metropolitan districts, each with an ag-

gregate population of over 100,000, are nearly 50,000,000 people. Thus 45% of the entire population lives on 1.2% of the area. While these metropolitan areas have grown in the last decade half again as rapidly as the entire country, the cluster of towns and small communities about the central city has developed on the average twice as fast as the primary center. The ensuing multitude of jurisdictions, coupled with the intricate problems of modern communal life has brought the opportunity and need for metropolitan and regional planning. Thus the original conception of town planning has been broadened and extended to apply to any area, independently of political boundaries. Whether official or unofficial planning agencies have resulted, each has been designed to fit the requirements and individuality of the area involved.

Planning Agencies.—The Department of Commerce reports that the year 1932 began with some 79 such agencies in operation. Only a small number embraced part or all of the aforementioned metropolitan districts. Concentrated in eleven states were 45 official county planning commissions, of which 25 were in California where the law requires such bodies. Of the remaining 34 agencies, 4 were state commissions, 6 official metropolitan or regional commissions, and 28 unofficial planning agencies. During the year several new county commissions and planning councils have been formed, mostly in the New York Region. One unofficial association has ceased temporarily to function.

Pioneer organizations in regional planning record the highest degree of achievement and activity, perhaps because they pertain to the most populous areas where needs are greatest. The organized movement is now approximately ten years old in New York, Chicago, Los Angeles, Philadelphia, and Boston. In Washington, L'Enfant's Plan of 1791 moves forward under modern principles. A review of progress in these centers is typical of that on a lesser scale throughout the Nation.

ACHIEVEMENT

New York.—Completing nine years of work, the Russell Sage Foundation Regional Plan Committee published the last of ten monumental volumes of fact finding and recommendation. The conception of the structure of a modern metropolis as thus set forth will bear significantly on its future form. The major task remains for the recently formed Regional Plan Association to promote adoption and execution of the Plan. A survey of construction is revealing the progress made since the first elements of the plan were formulated in 1928. Research is seeking to apply the neighborhood unit idea to low-cost housing in semi-slum areas. Widespread approval of planning is recorded by an increase of local official planning commissions from 19 to 108 in ten years, including 7 county commissions in 17 counties. Supporting official bodies is a strong and influential body of citizenry organized as planning councils in 11 counties and 252 communities.

Philadelphia.—The initial work of the privately sponsored Regional Planning Federation of the Philadelphia Tri-State District, culminated early in the year with the presentation of a completed regional plan. Findings and proposals as set forth in one concise and readable volume are the cooperative endeavor of a Technical Advisory Committee representative of the entire area, in collaboration with interested citizens and the Federation's technical staff. An appeal to the average citizen was made through copious and well selected illustrations and non-technical expression. Besides a table-size, eight-color Regional Plan map, larger scale separate editions were issued for each of the eleven counties, focusing attention on the responsibility of each part of the region to carry out the plan. Impressed with the need for early construction of well advised public improvements, the Federation urged consideration by governmental units of the fundamental character of its proposals, so that those might be undertaken immediately which were indisputably needed, would profitably

employ men and materials, sustain and amortize themselves, and which should be started reasonably soon. The lack of effective response to this plea because of public and private economy demonstrates that planning over extensive areas must depend on regionally minded, localized public understanding.

The National Capital.—The Bicentennial celebration in honor of George Washington has centered interest in the city he founded and planned with so much foresight. Eleven national professional organizations convening jointly in a Bicentennial Conference on the National Capital formulated principles for the planned development of Washington that it may be "an expression of the highest ideals and accomplishments of American art." A similar conference of national civic organizations on planning, parks and government met to further progress in their fields. The National Capital Park and Planning Commission, responsible by law for formulating a Regional Plan of Washington and Environs, has completed six years of intensive fundamental planning and now is embarked on the serious business of securing adoption and adherence to its plans. Denied new appropriations for purchase of park and recreational lands in 1932, the Commission has spread previous funds over two years. The well advanced program for a regional park system is endangered at a critical point. Already the Commission has loaned or contributed \$642,000 to the Maryland-National Capital Park and Planning Commission for extension of the Regional Park System into Maryland. Virginia has authorized acceptance by local authorities of similar advances.

Chicago.—The Chicago Regional Plan Association continues its valuable service through coordination of inter-community projects and formulation of planning standards. Being an unofficial agency, though supported by both public and private funds it has been particularly fitted

to build up an admirable record of cooperative enterprise. While continuing efforts for adequate parks and forest preserves, standardized highway widths, and study of land utilization, current endeavors have involved the larger jurisdiction and functions, such as State and Federal investigations of stream pollution, waterway problems, and highway coordination. Although not publishing a general regional plan of its own design, this association promotes a coordinated planning policy as the official acts of public bodies. Being parties to the preparation of plans and programs, public officials are better able to carry them into effect.

California.—The tenth anniversary of the Regional Planning Commission of Los Angeles County finds it the strongest and most active of all county commissions. It controls the highway plan, the subdivision and use of land, and even preservation of the amenities. Through cooperation of subdividers and a proper presentation of the plan, 101 miles of highway have been dedicated, representing a saving of \$12,000,000 to the public. Two of a series of sectional reports have appeared, admirably presented as to technique and interest, and contributing to the continued support given this commission. While 25 of the 58 California counties have organized planning commissions under the 1929 act, only 7 remain with reasonably adequate financing for the current year. Nevertheless, in true western spirit, all the others have been advancing, largely in becoming familiar with planning and in public education, and in some cases in necessary basic studies. San Mateo County has published a subdivision manual, and others have undertaken land use surveys as a basis for zoning. County planning is modestly and gradually being integrated as a worthy function of government.

Boston.—Combining formerly separate metropolitan administrative functions, the Metropolitan District Commission completes twelve years of official regional development out-

standing in extent, character and importance in the United States. The Division of Metropolitan Planning closes nine years of advisory service to the Legislature on transportation problems. Recent studies, in close cooperation with local planning boards, concern circumferential and parkway routes, highway intersection problems, and relation of blighted areas to the street system.

Other Regional Planning.—Numerous less well known agencies are doing equally valuable regional planning. St. Louis County has officially adopted a Major Highway Plan and organized a plan commission. Across the river and cooperating with St. Louis, the Tri-County Planning Association coordinates the work of county planning. At Pittsburgh, the Alleghany County Planning Commission is committed to close cooperation with the more active City Plan Commission, the latter recently adopting a major street plan. The Detroit region progresses with a separate set-up for specific functions; the Superhighway Commission, a new informal Metropolitan Park Commission, and now a proposed Port Authority. The Monroe County Planning Board, New York, besides completing notable mapping work, has initiated social and economic studies for rural areas. Mercer County, New Jersey, having prepared and adopted a plan, awaits needed enabling legislation. The Berks-Reading Region, through the Community Council, has effectively promoted public works though seriously curtailed in funds. In Connecticut, the Fairfield County Planning Association has financed and begun an active program. State planning, persistently advocated, offers an authoritative and logical means for regional planning administration now more widely appreciated. It has received recent official recognition in Illinois, Wisconsin and Iowa. The cooperative program of the Greater Pennsylvania Council has ceased due to divergence of funds to unemployment relief. New Jersey state planning similarly hangs in the balance.

ACCEPTANCE OF THE PLANNING IDEA

Planning Conferences.—Four outstanding conferences in addition to the Bicentennial meetings are of importance to future regional planning endeavor. Sponsored by New York University, leading scholars and officials discussed regional planning, government, and administration in metropolitan areas, with special emphasis on the regions of New York and Philadelphia. The National Conference on City Planning at Pittsburgh dedicated its annual meeting to a demonstration of "Economy and Security through Planning." The deliberations of the President's Conference on Home Building and Home Ownership published in 1932 recognized the basic necessity for broad and extensive city and regional planning. Delving into fundamentals, the American Academy of Political and Social Science discussed national and world planning in its usual searching manner.

Unemployment, Public Works and Economy.—Regional planning has been a small but profitable instrumentality for relief of unemployment, both through use of idle technicians and by outlining needed public works. Thus, the Los Angeles Commission employed 165 trained men from county relief funds, thus advancing surveys and studies which had been pending for five years. In Boston, an Emergency Planning and Research Bureau has used 150 engineers in detail studies for the metropolitan development. Wherever funds have been available for public works, regional and county planning commissions emphatically state that projects on the plan have been chiefly those undertaken. Planning commission budgets have felt the economic situation variously. Agencies most firmly established, especially the county commissions, appear to have suffered least though the larger centers were less fortunate. The newer, and usually unofficial organizations, where the movement is least understood, have been

CITY PLANNING

cut heavily, though in New Jersey and Pennsylvania, even official state and county planning has received a serious setback. To quote the official organ of planning: "Curtailment of planning activities at this time is short-sighted finance. * * * The only choice a city has is a choice between planned growth and unplanned growth. The latter is wasteful; the former, economical."

The Trend.—While there has been unquestionably an enlightened public opinion of the value and function of planning, it is not yet deeply ingrained. The drive for economy has revealed this just when there appeared to be substantial support. Aside from this danger, the especial

problem of planning over large and multiple jurisdiction is one of method and scope. With few notable but successful exceptions, primarily where county and regional boundaries correspond, regional planning agencies in the United States are purely advisory and coordinative, though such agencies in Europe have broad powers. The American democratic principle of cooperation is on trial. Barring acceptance of state planning as a function of government, there is likelihood of a concerted move for a new authority between the municipality, county and state, if cooperative planning proves ineffective in large metropolitan areas.

CITY PLANNING

BY FLAVEL SHURTLEFF

SECRETARY, NATIONAL CONFERENCE ON CITY PLANNING

SLUM REHABILITATION

New York.—The most significant planning events in 1932 were the survey and plan for the Lower East Side of New York City and the establishment by the Federal Government of a fund for the rehabilitation of slum areas. The plan for the lower East Side is the first in planning history to be sponsored and financed by banks and loaning institutions. In the 20 years from 1920 to 1930 the Lower East Side lost 53 per cent of its population; 280,000 people moved from this area to seek not only better houses, but better environment and better community facilities. The people who moved were those who could best maintain the community. Those who remained are the poorer people who can pay only very low rent for their housing. If the entire area were reconstructed probably less than 15 per cent of the present population could afford to live there. Here is a clear recognition by the loaning institutions of the Lower East Side of a paramount duty, not only to depositors, but to the community. They must do more than merely pro-

tect their investments by attention to the individual pieces of property on which their loans have been made. They must, by heroic measures if necessary, prevent the decadence of communities and lift to a higher level the standard of living. Orrin C. Lester, the Vice-President of the Bowery Savings Bank, New York, says: "The degree to which the improvements of the Lower East Side have depreciated and the state of economic and social decline which the community generally has reached make it clear that rehabilitation can be accomplished only by a gradual reconstruction of the entire area. . . . The essential requirements for permanent economic and social improvement of these areas are that both property values and the population be stabilized. . . . A broad comprehensive survey of the community needs should precede any effort to reconstruct private property."

R. F. C. Loans.—The passage of the Emergency Relief and Construction Act by Congress in July, 1932, authorized the Reconstruction Finance Corporation, among other things, to

V. MUNICIPAL GOVERNMENT

loan Government money for slum clearance. This was the first recognition by the National Government of responsibility for the physical improvement of communities and the bettering of social standards.

Slum Problems.—There can be no short cuts to the solution of the slum problem. It is not a question merely of demolishing houses unfit for human habitation and replacing them with model apartments. It involves radical changes in building methods and in traditional policies of financing. Complicated legal problems must be solved. Inflated and obsolescent values must be written off.

Rebuilding Difficulties.—In his "Program to Prevent Economic Disintegration in American Cities," read before the National Conference on City Planning in November, 1932, Harland Bartholomew, distinguished city planner, and President of the Conference, said: "The fundamental difficulty and objection to the rebuilding of central areas is because of the extremely influential factor of environment. Reconstruction, consequently, can only take place when it is done upon a sufficiently large scale to enable the new developments to create their own environment."

ECONOMIC ADVANTAGES OF CITY PLANNING

Population Growth Factor.—The enormous economic advantages from sound city planning can be better realized today than before. We are told by competent authorities that the total population in this country will reach a maximum of about 150,000,000, an increase of 20 per cent, during the next generation. Of course, not every city will increase in this ratio. The census figures show that for the last generation cities have increased in population in direct proportion to their size and that there has also been a variance in increase depending on geographical distribution. Based on the factors of size and location, it is possible to make a fairly accurate estimate of each city's growth for the next thirty years. Certainly some such estimate is a far

saner basis for economic planning than the heretofore assumed unlimited growth. Again quoting Mr. Bartholomew: "There is far more fundamental economy to be achieved by city planning than by the arbitrary slashing of municipal budgets based upon immediate expediency. . . . We can reduce municipal expenditures only to the point that fundamental needs will not be impaired. Further economy can come only as the result of a total city structure more efficiently designed and hence capable of more economical operation."

Significance of Scientific Planning.

—The deeper significance of the science of planning as evidenced in the action of the Federal Government and in the radical policy of the Lower East Side banks is not yet fully realized. City fathers are not alive to the necessity of a coordinating agency in municipal affairs if waste is to be eliminated. They are still playing politics and allowing the various city departments which build things to carry out their own programs without thought of adjustment to the programs of other municipal departments. They have yielded in many instances to the clamor for immediate reduction in local taxes. Consequently the appropriations of many planning commissions have been seriously cut and their effectiveness much hampered.

Official Plan of Cincinnati.—Cincinnati has signally profited by the continuous administration of an officially adopted city plan. Quoting Alfred Bettman, formerly City Solicitor and now Chairman of the Cincinnati Planning Commission,—"The few thousands of dollars spent upon the technical staffs of planning commissions yield enormous results in values and the prevention of wastes, and it is the falsest kind of economy to reduce planning. Indeed, if we were wise, we would just, in this very time of economic depression, be increasing our planning; for when building activity is great, the resistance to planning tends to be more effective. The present is the time to increase the use of the planning method, not to decrease it."

ZONING

NEW PLANNING PROGRAMS

Unusual political courage and administrative wisdom has been required to embark on new planning programs in 1932. Consequently the appointment of planning commissions in Richmond, Virginia, and Nashville, Tennessee,

and the active preparation of county plans in several counties in California, are all the more remarkable. Worthy of special mention too is the action of the Fairfield County, Connecticut, Planning Association in raising from private sources a fund for the preparation of a county plan.

ZONING

By H. M. OLMSTED

ASSOCIATE EDITOR, *The American City*

ORDINANCE ENFORCEMENT

The enforcement of zoning ordinances, regulating the uses of urban land in many cases the height or bulk of buildings and the area occupied by them is under an immediate handicap on account of the economic depression, but these ordinances, when wisely conceived and enforced, bring present and lasting advantages both to the property owner and the community. The handicap arises from the desire of economically harassed owners of real estate to weaken zoning restrictions, or their enforcement, so as to permit uses that will, it is hoped individually, create or increase income. The Chicago Regional Planning Association, for example, reports that in almost every zoned city and village in the Chicago region during the past two years, requests have been made for special permission to make changes or carry on activities that violate the zoning regulations. These have included the remodeling of homes in single-family districts into two or more separate apartments, or the erection of rear dwellings on lots in such districts, the operation of wholesale chicken, pigeon and rabbit raising, and of commercial garages, paint shops, etc., in residence zones; the crowding of more apartments upon the land in multiple-dwelling districts than the law allows, and the establishment of beauty shops, bakeries, laundries and stores of all kinds in homes. D. H. Burnham, President of the Association, has stated that boards of appeals have

no power to allow modifications that are actually violations, and that to countenance them may cause irreparable damage to the community while benefiting only a few.

ZONING ADVANTAGES

The basic advantage that zoning offers to the property owner and the community in times like the present lies in its relation to the cost of public improvements and administration, and to government finances. Although not accurately demonstrable, it seems clear that zoning as well as planning saves money to the taxpayer and also improves the city's financial position. One of the causes of unduly high taxes is the lack of proper city planning and zoning. Good planning produces a street pattern that makes for economy and efficiency in the installation of public improvements and the rendering of municipal services, and also of private utility service. Zoning produces the homogeneity of given districts and encourages the uses for which they are best fitted, thus simplifying and further reducing the cost of public services, and also conserving and stabilizing property values so that tax revenue is easier to estimate, levy and collect.

Increased costs where zoning is absent were commented upon as follows by Francis J. Mulvihill, Chief of the Division of City Planning and Municipal Engineering, Pennsylvania Department of Internal Affairs, in a recent address:—"There is plenty of evidence that the tasks of municipal

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administration are complicated by the invasion of residences into industrial sections, or by the invasion of industries or business into residence sections. Assessors find fair valuations difficult to make in areas of mixed use. Police costs are higher in areas of diverse activities. School authorities with a school half emptied because of the change in a neighborhood find high costs per pupil. Fire protection and fire prevention are more costly when adequate for a section with a mixture of homes, factories and stores. What type of paving is suitable for a street that is part residential and part industrial? Water supply, sewerage, transportation and other public works,—facilities and utilities necessary for us yet beyond us, as individuals, to supply—are problems in a crazy-quilt locality.”

PLANNING AND CLASSIFICATION

Many municipalities have zoning ordinances but have not adopted comprehensive city plans, but the desirability of having such a plan as the groundwork for the zoning ordinance and map is widely recognized among students of the subject. Changes of zoning classifications are likewise best made with due consideration of the city plan. The importance of this was brought out in the case of Armourdale State Bank v. Kansas City (292 Pac. 745), by the Supreme Court of Kansas, the syllabus by the court stating: “A preliminary consideration of a proposed change in a zoning ordinance by a competent body of disinterested persons [the city planning commission, or a special committee or commission where no city planning commission exists] is not a mere formality but an essential and important prerequisite to official action affecting the value and use of private property.”

The interdependence of planning, zoning, property values and taxes was concisely expressed by George H. Herrold, City Planning Engineer of St. Paul, Minn., writing in *Minnesota Municipalities*: “The first essential in successful zoning is a

study which is reasonable, understandable and applicable to the peculiar requirements of the village or city concerned. The zoning map giving the boundary lines between districts is as important as the text of the ordinance. The map should be based on at least a tentative planning map—the thoroughfare streets must be determined and laid out before zoning is attempted. Legal difficulties often grow out of a lack of character in the general plan. Poor zoning is worse than no zoning. A proper ordinance cannot be made by clipping sections from a dozen other ordinances. The next four years may be trying ones for the official who attempts to preserve the tax structure of the community. Zoning will be one of the principal factors in preserving and stabilizing municipal property values.”

AIRPORTS AND ADJOINING PROPERTY

The case of *Swetland v. Curtiss Airports Corporation*, referred to in this department two years ago on account of its bearing on the status of airports in relation to adjoining property (although a zoning ordinance was not involved) was passed upon by the United States Circuit Court of Appeals early in the year, the court deciding that the airport was a nuisance to the plaintiffs on account of low flying, noise, glare, etc., but stating as to the upper stratum of air, which the owner of the surface may not reasonably expect to occupy, “he has no right, it seems to us, except to prevent the use of it by others to the extent of an unreasonable interference with his complete enjoyment of the surface.” This may be looked upon as further corroboration of the principle of the social control of private property which zoning represents.

GOVERNMENT SURVEY

On May 31, 1932, the Bureau of Standards, U. S. Department of Commerce, made public its survey of zoning laws and ordinances adopted during 1931, stating that zoning regulations adopted in that year in 68

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communities increased the number of zoned cities and towns in the United States to 1,150, more than 69 per cent of the entire urban population having been brought under zoning control.

DIVISION V

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

AMERICAN CIVIC ASSN., Union Trust Bldg., Washington, D. C.	INTERNATIONAL CITY MANAGERS' ASSN., 923 East 60th Street, Chicago, Ill.
AMERICAN LEGISLATORS' ASSN., Equitable Bldg., Denver, Colo.	NATIONAL ASSN. OF CIVIC SECRETARIES, Ridge Bldg., Kansas City, Mo.
AMERICAN MUNICIPAL ASSN., Lawrence, Kan.	NATIONAL CIVIL SERVICE REFORM LEAGUE, 521 Fifth Ave., New York City.
AMERICAN SOCIETY OF MUNICIPAL ENGINEERS, 3817 Olive Street, St. Louis, Mo.	NATIONAL INSTITUTE OF PUBLIC ADMINISTRATION, 302 E. 35th St., New York City.
GOVERNMENTAL RESEARCH ASSN., 722 Jackson Place, Washington, D. C.	NATIONAL MUNICIPAL LEAGUE, 309 E. 34th St., New York City.

DIVISION VI

TERRITORIES AND SPHERES OF INFLUENCE

ALASKA AND HAWAII

BY WILLIAM ATHERTON DUPUY

EXECUTIVE ASSISTANT TO THE SECRETARY OF THE INTERIOR

ALASKA

Foreign Trade.—Customs reports disclosed a decline of 16.7 per cent in the total commerce in 1932 as compared with 1931. Exports decreased \$8,511,905, or 14.9 per cent, and imports were \$5,238,010, or 20.2 per cent less. Total exports were \$48,306,407 and imports \$20,599,693, with a balance of trade in favor of Alaska of \$27,706.77. Similar statistics for the year before were: exports, \$56,818,375; imports, \$25,837,703; balance of trade, \$30,980,672.

Finance.—The report of the Territorial treasurer shows a balance of \$561,662.43 June 30, 1932, as compared with \$694,894.93 the previous year. The combined resources of the Territorial and national banks on the same dates were approximately: capital, \$890,000; surplus and net undivided profits, \$787,500; deposits, \$10,331,700; while approximate totals for the year previous were: capital, \$915,000; surplus and net undivided profits, \$826,000; deposits, \$11,275,000. The total assessed valuation of incorporated towns was \$27,155,357 in 1932, as compared with \$26,745,956 in 1931.

Fisheries.—The returns from the fisheries were less both in quantity and value than in 1931. In keeping with the established policy of the Bureau of Fisheries, precautions were taken to assure an adequate escape-ment of salmon to the spawning grounds. There were evidences of im-

pairment of the runs in a number of localities, notably in the Cook Inlet and Prince William Sound areas, necessitating further limitations on commercial fishing so that succeeding cyclical returns will be assured through adequate seeding. The total value of the fisheries products, exclusive of aquatic furs, was \$33,594,742, a decrease of \$4,084,297 from 1930 when the value was \$37,679,049. These figures represent the value of manufactured products. It is estimated that the value of the catch to the fishermen was approximately \$10,043,000 or about \$2,000,000 less than the previous year. The value of the canned salmon output represented about 96 per cent of the total value of all products of this industry. One hundred and sixteen canneries employed 18,158 persons to pack 5,403,736 cases valued at \$29,096,292, as compared to 149 canneries employing 22,324 persons to pack 5,032,376 cases valued at \$29,694,898 last year. The herring industry experienced a sharp decline both in the quantity produced and the value of the output. In southeastern Alaska the production of Scotch-cured herring increased, but this was more than offset by a decrease in other districts. Twenty-nine plants employed 730 persons to prepare 8,011,050 pounds of Scotch-cured herring, 15,882,976 pounds of meal, 2,152,706 gallons of oil, and 7,607,797 pounds of bait, valued at \$1,227,896. During the previous year 1,413 persons produced

ALASKA AND HAWAII

8,081,245 pounds of Scotch-cured her-
ring, 23,411,023 pounds of meal,
3,545,422 gallons of oil, and 9,298,140
pounds of bait, valued at \$2,133,677.

Furs.—Fur seal skins to the num-
ber of 49,524 were taken from the
Pribilof Islands in 1931, the largest
number taken in any year since 1889.
The number of seals in the herds, Aug.
10, 1931, is estimated to be 1,127,028,
an increase of 7.84 per cent during
the past year. In 1910 there were
but 132,000 seals, but now, 22 years
later, there are nearly nine times as
many animals, and each year thou-
sands of skins are taken for the mar-
kets of the world. In all, 32,181 seal
skins were sold in 1931, for \$546,-
219.20. Statistics compiled by the
Bureau of Fisheries disclose that since
1918 approximately \$6,000,000 have
been deposited in the Treasury of the
United States as net revenue derived
from the sale of seal skins and fox
skins.

Minerals.—According to statistics
prepared by the United States Geolo-
gical Survey, Alaska since 1880 has
produced minerals, chiefly gold and
copper, valued at \$641,591,000. The
peak of the production was reached
in 1916 when it was reported to be
\$48,386,508. Since that time there
has been a gradual decline, reaching a
low point last year when the value of
all minerals amounted to \$12,278,000.
It is encouraging to note, however,
that the gold production increased ap-
proximately \$1,000,000 over that of
1930. Early reports from the mining
districts indicate that there will be a
material increase in the gold output
for next year. The total gold output
from all sources is estimated to be
459,900 fine ounces, valued at \$9,507,-
000, as compared with 410,020 ounces
valued at \$8,476,000 last year. The
prevailing low price of copper resulted
in a curtailment of the production.
Eighty-eight thousands tons of ore
produced approximately 22,614,000
pounds of copper, valued at \$1,877,-
000, as compared with 32,651,000
pounds, valued at \$4,244,600, in 1930.
The outlook for the mining industry
for the next year is most encourag-
ing. Reports from all districts indi-

cate that there are more prospectors
in the field than there have been for
many years. Favorable predictions
for next year are further justified by
the substantial expansion of opera-
tions in, and productions from gold-
lode properties throughout the Ter-
ritory.

Railroads.—The report of the gen-
eral manager of the Alaska Railroad
shows an increase of 0.20 per cent in
passenger revenue and 31.62 per cent
increase in freight revenue during the
year. The total deficit for rail and
river boat operations was \$412,466.75
or a decrease of 30.06 per cent. The
total rail and waterline revenues in-
cluding non-operating income was
\$1,337,450.63, an increase of 16.54
per cent, and the operating ratio for
the railroad was 132.09 as compared
with 154.31 for 1931. Steamboat
transportation on the Yukon and Tan-
ana River was maintained to serve
regions tributary to the railroad. A
new river steamboat is under con-
struction, which will replace the two
boats now in operation and reduce
the cost of this service.

Aviation in Alaska has emerged
from the experimental stage and taken
its place among the recognized trans-
portation facilities in the Territory.
less than a decade has elapsed since
the first mail was transported by air
between Fairbanks and McGrath. Now
practically every community in the
interior may be served by air trans-
portation. Anchorage, Fairbanks, and
Nome have large, well-equipped fields
and are headquarters for companies
that are operating in the interior of
the Territory. Cordova, Juneau, and
Ketchikan are home ports for planes
that serve the coastal regions. There
are at the present time in Alaska 31
planes. Incomplete data show that
6,637 passengers were carried for a
total of 942,176 passenger miles with-
out the loss of life or cargo; 496,680
pounds of freight, express and mail
were transported.

Education of all the children in
Alaska is a major problem and those
who are seeking a satisfactory solu-
tion are confronted with situations
peculiar to the Territory. The popu-

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lation consists of about an equal number of white and native people living in communities that are separated by great distances and distributed over a large territory. Transportation and communication are inadequate or almost wholly lacking in many regions. Seasonal occupations and the somewhat nomadic life of the natives in the interior further complicate the problem. All of these factors must be considered in preparing a satisfactory program. The Territory and the Federal Government cooperate in an effort to provide adequate school facilities for children in all sections of Alaska.

Health.—Doctors, nurses, and teachers render efficient service under discouraging conditions and often without adequate facilities. During the year six hospitals were maintained at strategic points in the Territory by the Government for the natives. Part time physicians were available in three districts and village nurses were in attendance in 17 of the larger communities. School teachers are supplied with simple medicines in those villages where the nurse or doctor is not available. The native population along the Yukon and its large tributaries are given treatment by the staff of the *Martha Angeline*, a floating hospital fully equipped and in charge of a physician. The usual facilities of the medical service are supplemented by airplanes and Coast Guard cutters. Many emergency calls are received from isolated communities and prompt relief is afforded by sending doctors, nurses, and medicines by airplane.

Reindeer were introduced into Alaska about 40 years ago as a relief measure to provide food and clothing for the native people. In recent years the herds have increased rapidly. A reindeer service has been organized by the Secretary of the Interior and recommends new range rules and submitted a plan for an organization to manage the industry. Some conception of the problems involved may be had from the statement that 13,000 natives are largely dependent on the reindeer industry. There are many

natives and some native communities that are without deer. Investigations are under way to inquire into the situation and suggest plans for supplying deer, where they may be needed. Market conditions are more unfavorable than they have been for years. It does not seem probable that sales of reindeer meat will increase materially until there is an improvement in prices received for other commodities.

HAWAII

Foreign Trade.—The Territory of Hawaii, according to the latest reports from its Governor, has suffered somewhat from the depression but has maintained an economic status better than that of most of the States. The Territory's balance of trade was favorable, the value of its exports amounting to \$103,000,000 as against \$87,000,000 worth of imports. As indicating the dominance of its two principal crops, sugar and pineapples, it may be set down that they contributed \$97,000,000 of the total export.

Revenues.—Incomes of individuals and corporations fell off, resulting in a decrease of about twenty per cent in internal revenue payments, the total for the year being \$3,785,000 paid into the Federal Treasury from this source alone. Appropriations by the Federal Government for the support of the Governor's office, the territorial legislature, Geological Survey work, National Park improvement, and all other services, amounted to but one-tenth this income. The Territory has, in fact, since it was created, contributed to the Federal Government nearly \$150,000,000 above what it has received from the Government.

Population of the Territory increased during the year by 5,296 to a total of 380,507. The number of children in the public schools increased to 78,663, all but about 1,200 of whom were born in the United States.

Sugar production for 1932 passed the 1,000,000-ton mark for the first time. The market value of this crop last year was between \$50,000,000 and \$60,000,000, as compared with a value of \$70,000,000 for a crop of 900,000

PUERTO RICO

tons in 1929. The price in 1923 and 1924 was more than twice the recent price. The production has grown from 600,000 tons in ten years. The price of sugar during the past year reached the lowest figure ever before known in the sugar industry of America, or of the world. The New York price of 96 degrees raw sugar reached 2.57 cents per pound on May 31, 1932, and during a great portion of the year the range of price has been very low. The numbers of employed have not diminished as compared with other years, and the rates paid these employees continue to be higher than those paid any other sugar workers in the world. Never before in its history has Hawaii been more dependent upon the protection afforded its major industry under the tariff. Estimates indicate that the gross proceeds per ton of sugar for the year will be little, if any, in excess of the cost of producing and marketing this year's crop.

Pineapples.—The past year has been an unfortunate one for the pineapple industry. For a period of five years the production of canned pineapples averaged about 8,500,000 cases. At this level of production and the then buying power of the consuming

public the product moved into consumption at good prices and the industry was prosperous. In the calendar year 1930 the production jumped to 12,672,296 cases, and for the calendar year 1931 to 12,726,291 cases. This very large increase of production above the level of the preceding five years resulted in a large accumulation of unsold stocks. Whether the consumers could have used this increased output had there been no lowering of its purchasing power is an open question. Under the circumstances which actually have existed it did not do so. In an effort to move the stock, drastic price reductions were put into effect during 1931 so that canned pineapple was being sold at prices below the cost of production. Even under those conditions there was a heavy carry-over on January 1, 1932. It was therefore clearly evident that a drastic curtailment of production must take place to prevent further losses and the total demoralization of the industry. The producing companies all curtailed their packs, and the output for 1932 will not exceed 6,000,000 cases. It is hoped that by this procedure the stocks in the warehouses will be cleared out by the beginning of the packing season in the summer of 1933.

PUERTO RICO

BY FRANCIS LEJAU PARKER

BRIGADIER GENERAL, U. S. A.; CHIEF, BUREAU OF INSULAR AFFAIRS,
WAR DEPARTMENT

GOVERNMENT

Political Status.—Puerto Rico, which the Supreme Court has held to be non-incorporated territory of the United States, has a status differing in certain respects from that of those territories incorporated into the Union. Its status also differs from that of the Philippine Islands, likewise constituting non-incorporated territory. The present governmental system of the island is prescribed by the Act of Congress of March 2, 1917, frequently referred to as the Organic

Act of Puerto Rico. An Executive Order of March 21, 1917, issued under authority contained in the Act of March 2, 1917, and of a previous Act of Congress of July 1, 1902, placed in the jurisdiction of the War Department "all matters pertaining to the Government of Puerto Rico, except as otherwise provided by law" and assigned to the Bureau of Insular Affairs of the War Department the business of that Department pertaining to civil government in Puerto Rico.

VI. TERRITORIES AND SPHERES OF INFLUENCE

Executive power is vested in the Governor, who is appointed by the President, by and with the advice and consent of the Senate of the United States. There is no Vice Governor, the President being empowered to designate the head of one of the insular executive departments to act as Governor when necessary. The heads of the several executive departments (Commissioners) operate under the general supervision of the Governor and, collectively, form a Council, known as the Executive Council. The Attorney General and the Commissioner of Education are appointed by the President of the United States, by and with the advice and consent of the United States Senate, as are also members of the Supreme Court of Puerto Rico, the district judge, district attorney, and marshal of the District Court of the United States for Puerto Rico. The President also appoints the Auditor. The island has a Resident Commissioner to the United States, chosen by popular election.

The Legislature consists of a Senate and House of Representatives, the members of which are chosen by popular election. Subject to certain specified limitations, to the veto function of the Governor, and to the authority reserved by Congress to annul insular legislation, it possesses general legislative authority in "all matters of a legislative character not locally inapplicable."

The judicial system includes, in addition to subordinate courts, both the Supreme Court of Puerto Rico and the District Court of the United States for Puerto Rico. The latter has jurisdiction of cases cognizable in the district courts of the United States and certain prescribed additional jurisdiction, including the naturalization of aliens and Puerto Ricans. Provision is made for appeals, in certain cases, from judgments of the Supreme Court and of the District Court to appropriate higher courts, including the Supreme Court of the United States. Except as otherwise provided, the statutory laws of the United States not locally inapplicable are in effect in Puerto Rico. Important among the excep-

tions are various provisions whereby Puerto Rico is relieved from contributions to the United States Treasury, which would otherwise accrue under the various Federal revenue laws.

ECONOMIC CONDITIONS

Depression Effects.—Theodore Roosevelt resigned as Governor of Puerto Rico Jan. 18, 1932. He was succeeded by James R. Beverley, Attorney General of Puerto Rico since May 22, 1928. The latest annual report of the Governor, covering the year ended June 30, 1932, says: "The economic condition of the island during the year has not been good, although the world-wide depression has probably been felt less here than in more highly industrialized areas. The amount of poverty, malnutrition, and unemployment has been distressing in spite of the fact that this year saw the largest crop of sugar ever raised in the island—over 992,000 tons. A great deal of employment in Puerto Rico is seasonal and we have had for many years a high percentage of workers unemployed in whole or in part, whose condition has been aggravated by the world-wide depression."

Agriculture.—The insular government has devoted its special attention during the past several years to the encouragement of small farming units and the development of crops suitable for this class of farming, such as coffee and vegetables for home consumption and for the winter market of the continental United States. Large quantities of coffee seedlings and vegetable seeds were distributed. Several vegetable crops new to Puerto Rico were successfully initiated by the field force of the Department of Agriculture and Commerce in its campaign for crop diversification. Sugar dropped to the lowest price received since 1898, and only the very large crop of 992,432.84 short tons saved the island from serious economic consequences. The Fourth Congress of the International Association of Sugar Cane Techninologists met in San Juan in March, 1932. At the International Colonial and Overseas Exposition held in Paris in 1931, Puerto Rican coffee,

PUERTO RICO

	Year ending June 30:		
	1900	1931	1932
Brought from the U. S.....	\$6,952,114	\$68,018,167	\$52,826,794
Shipped to the U. S.....	3,350,577	94,876,997	83,645,863
Brought from foreign countries.....	3,037,391	8,419,243	8,454,307
Shipped to foreign countries.....	3,261,922	3,523,930	2,771,075
Totals.....	\$16,602,004	\$174,838,337	\$147,698,039

cigars, and needlework were awarded the *Grand Prix*, the highest award granted.

EXTERNAL TRADE

The above table shows the movement of external trade by value.

The above figures show a favorable balance for the island of \$25,135,837 for the year 1931-32. The total trade with the United States and foreign countries decreased about 16 per cent from the figures of the preceding year. This decline is represented by a falling off in imports of \$15,156,309 and in exports of \$11,983,989. Trade with the continental United States represents about 92.4 per cent of the total external trade. Shipments to the United States comprise 96.8 per cent of the total exports and shipments from the United States amounted to 86.2 per cent of the total imports from all outside sources. Coffee shipments, valued at \$154,903, dropped to the 1930 level; sugar exports, valued at \$55,118,211, registered a slight increase over 1931. During the year ended June 30, 1932, Puerto Rico ranked first as a customer of the United States in the Central and South American area. The purchases of Puerto Rico from the United States during the year ended June 30, 1932, showed a per capita of \$34.20, as compared with combined per capita purchases of all Latin-American countries of approximately \$2.50.

GOVERNMENT FINANCES

The General Fund, commonly termed "Insular Revenues," represents the collection of taxes and other receivables, which, according to law, are available for current operations

of the Insular Government. On June 30, 1932, the cash on hand in the General Fund was \$874,422.06, while there were other current assets of \$443,068.48. Outstanding against this were appropriation liabilities of \$679,251.97, leaving an excess of total current assets over appropriation liabilities of \$638,238.57. The bonded indebtedness of the Insular Government amounted to \$28,761,000 on June 30, 1932, as compared with \$29,097,000 on June 30, 1931. During the same period the sinking fund for redemption of bonds decreased by \$88,049.34, making a net decrease in the bonded indebtedness of \$247,950.66. The total indebtedness of municipalities as of June 30, 1932, was \$18,882,541.25, plus interest accrued and payable amounting to \$40,007.66. This shows an improvement when compared with the total indebtedness of \$19,957,352.15, plus accrued interest of \$27,603.47, reported on June 30, 1931.

HURRICANE DESTRUCTION

Since the close of the period covered by the Governor's report, on Sept. 27, 1932, Puerto Rico again suffered the misfortune of being visited by a hurricane of extraordinary severity. While the storm did not extend over so large a portion of the island as did the hurricane of 1928, the destruction within the area appears to have been greater. Two hundred and forty-seven persons were killed and about three thousand injured; destruction of property is estimated to be in excess of \$30,000,000.

EDUCATION

The total enrollment in the public schools for the year 1930-31 was 229,169, an increase of 2,954 over

VI. TERRITORIES AND SPHERES OF INFLUENCE

the preceding year. There were in operation 23 public high schools, 20 incomplete, or continuation, high schools, 39 second unit rural schools, 1,813 elementary urban schools, and 1,899 elementary rural schools, with a teaching staff of 4,601. Organized school lunch rooms numbered 779, and an average of 36,018 children were served daily during the year. More than one-half of the money used during the year for operating these lunch rooms was contributed by the Puerto Rico Child Health Committee, an organization composed of representatives of a number of child welfare and health organizations of the continental United States. The total expenditures for educational purposes from insular funds amounted to \$4,363,007, in addition to which the municipalities expended \$1,166,692. There were 41 private schools accredited by the Department of Education with an enrollment of 7,734 children and 359 teachers, and in addition 47 private schools not so accredited, with an enrollment of 3,518 children and 95 teachers.

HEALTH

The general death rate for the calendar year was 20.4 per 1,000 popu-

lation, 1.8 points higher than the rate for the preceding year, but lower than the rate for any other year since 1924. The infant mortality rate rose from 126 to 130. The increased death rate is attributed by the Governor to the high incidence of malaria during the year. The Government has not met with great success in its efforts towards malaria control, due mainly to the lack of sufficient funds to carry out necessary draining operations. The prevalence of tuberculosis also presents a serious problem, the Governor reporting that the number of estimated cases ranges from 30,000 to 50,000. The health units and sub-units operated 64 milk stations for feeding infants and gave aid in 3,125 cases during the year. The Government continued its program of consolidating insular and municipal health activities through the extension over the island of a system of health units. During the year nurses attached to the health units made a total of 54,453 visits. The Rockefeller Foundation contributed a total of \$72,399.36 to health work during the year 1931-32, and the Puerto Rico Child Health Committee contributed a total of \$40,000.

THE PHILIPPINE ISLANDS

BY FRANCIS LEJAU PARKER

BRIGADIER GENERAL, U. S. A.; CHIEF, BUREAU OF INSULAR AFFAIRS,
WAR DEPARTMENT

GOVERNMENT

Political Status.—The Philippine Islands, as non-incorporated territory of the United States, have a status differing, in certain respects, from that of those territories which have been incorporated into the Union and many of which have been admitted subsequently to statehood. The Supreme Court of the United States has held that the Philippines were not territory "which had been incorporated in the Union or become a part of the United States, as distinguished from merely belonging to it." The

same tribunal, while emphasizing, in general, that the Constitution of the United States is in force in the Philippine Islands, has declared that "the Constitution, however, contains grants of power, and limitations which in the nature of things are not always and everywhere applicable" and has applied that principle in certain matters affecting territories not incorporated into the Union.

The governmental system of the islands is prescribed by the Act of Congress of Aug. 29, 1916, frequently referred to as the Organic Act of the

THE PHILIPPINE ISLANDS

Philippine Islands. An executive order of Sept. 19, 1916, placed in the jurisdiction of the War Department (which had theretofore exercised similar supervision under previous legislation) "all matters pertaining to the Government of the Philippine Islands, except as otherwise provided by law" and assigned to the Bureau of Insular Affairs of the War Department the business of that Department pertaining to civil government in the Philippine Islands. The executive branch of the Government of the Philippine Islands is headed by the Governor General, who has supervision and control over all executive functions and, in general, appoints (by and with the consent of the Philippine Senate) the heads of executive departments and other officials of the insular government. The Governor General and the Vice Governor (who is *ex officio* head of the Department of Public Instruction) are appointed by the President, by and with the advice and consent of the Senate of the United States, as are also the members of the Supreme Court of the Philippine Islands. The Auditor and Deputy Auditor are the only other officials of the Philippine Government who are appointed by the President. The legislature consists of a Senate and House of Representatives, the members of which are, in general, chosen by popular election, a few members representing special districts being appointed by the Governor General.

ECONOMIC CONDITIONS

Governor General.—Dwight F. Davis resigned effective Jan. 9, 1932, and was succeeded by Theodore Roosevelt Feb. 29, 1932. The latest annual report of the Governor General of the Philippine Islands is that covering the year ended Dec. 31, 1931.

Degree of Autonomy.—The Organic Act provides that trade relations between the islands and the United States shall be governed exclusively by laws of Congress and that acts of the Philippine Legislature in certain other specified matters (the tariff, immigration, lands of the public domain, timber, mining, currency and

coinage) shall not become law until approved by the President of the United States. Subject to these limitations, to the veto function of the Governor General, and to the authority of Congress (rarely, if ever, exercised) to annul legislation, the Philippine Legislature has been granted general legislative power. The highest judicial authority is the Supreme Court of the Philippine Islands, which has original jurisdiction in certain cases and general appellate jurisdiction as regards the decisions of the subordinate insular courts. Its judgments are, in certain cases, subject to review by the Supreme Court of the United States. The statutory laws of the United States do not apply to the Philippine Islands except when they specifically so provide, or it is so provided in the Organic Act. In general, inhabitants of the Philippine Islands, while under the sovereignty and protection of the United States, are citizens, not of the United States, but of the Philippine Islands. The Islands have two Resident Commissioners to the United States chosen by the local legislature.

The Islands continued through 1931 to feel a reflection of the world-wide economic depression. The low prices of Philippine products in the world markets resulted in a retardation of internal business, unemployment, and a consequent falling off in private incomes and government revenues. Due to conditions of life in the tropical climate of the Philippines, there was little actual want or suffering from the lack of necessities of life. Public order was in general successfully maintained, although there were some disturbances in scattered localities. The immediate causes, which were not the same in the several cases, were probably aggravated by conditions incident to the general economic situation. General health conditions showed improvement in comparison with those of the preceding year.

GOVERNMENT ACTS AND POLICIES

Relations with United States.—Legislation looking to a change in relations between the United States and the Philippine Islands was under seri-

VI. TERRITORIES AND SPHERES OF INFLUENCE

ous consideration during the first session of the Seventy-second Congress. A Bill directed to this end passed the House in April, 1932, and the question is scheduled for further consideration by the Senate during the session of Congress beginning in December. Participating in the hearings before the appropriate Congressional committees having charge of these bills was a legislative mission from the Philippine Islands composed of five members of the Legislature and the two Resident Commissioners. Referring to the movement for a change in relationship, Governor General Davis stated in his annual report: "The political problems involved are important, affecting as they do not only our two countries but also the whole situation in the Far East. But the economic problems involved are fundamental. Without economic stability, any new political relationship will be greatly hampered, if not doomed to failure at its inception. . . . Hasty and ill-advised action might well bring disaster and discredit in its train."

Economic Development.—In the Philippines the Governor General continued his emphasis on the questions of economic development, honesty and economy in public administration, and cooperation between the different agencies of government. He constantly urged upon the Legislature and the public the necessity of working toward economic self-sufficiency. Chief among the measures recommended toward that end were the acceleration of the conversion of the idle lands of the public domain into taxable wealth and the development of agriculture with the object of supplying the food demands of the Islands and the tropical products needed by the outside world.

Legislation.—The first session of the Ninth Philippine Legislature convened July 16 and adjourned Nov. 9, 1931. A total of 124 bills was passed, a smaller number than usual, of which the Governor General vetoed 28, principally on account of minor defects. Among the more important measures enacted and approved were: an act authorizing the Secretary of Commerce and Communications to com-

mence negotiations for coördinating the systems of electrical communications throughout the Islands and to report a plan to the next session of the Legislature; an act to promote credit facilities for small farmers (three acts); an act clarifying the provisions of the tariff law directed to the protection of American manufacturers selling to the Philippine government; an act creating a National Economic Planning Board; regulation of airplane and radio communications; an amendment to the coöperative marketing law. Among the more important measures which the Ninth Philippine Legislature has had under consideration during its second session, ended in November, 1932, were bills directed towards effecting rather sweeping changes in the organization of the Insular Government.

Triennial Election.—The regular triennial general election was held on June 2, 1931, in which the insular, provincial and municipal elective officials were chosen. The result was an overwhelming victory for the Nacionalista-Consolidado Party which has been in control for many years.

FINANCIAL CONDITIONS

The ordinary revenues of the Insular Government for the year 1931 amounted to \$32,881,587, which represents a decrease of \$5,345,905 from the preceding year. The ordinary expenditures amounted to \$38,207,978, a decrease of \$1,728,419 from the previous year, but an excess of \$5,326,391.00 over revenues. A sufficient cash surplus remained from prior years, however, to provide for the deficit and leave an unappropriated balance of \$2,925,338. The bonded indebtedness of the Philippine government on Dec. 31, 1931, amounted to \$86,543,500, of which \$74,725,000 represented obligations of the Insular Government and \$11,818,500 represented obligations of the provincial and municipal governments. The amount of outstanding indebtedness is well within the limit provided by law, and sinking funds are fully maintained to cover all outstanding bonds. The Governor General reports that, through the cordial cooperation of the executive depart-

VIRGIN ISLANDS

ments, the Council of State, and the Legislature, the financial soundness of the Government was maintained. The several companies of which the Philippine Government owns a majority of the stock are all reported as having net profits for the year 1931.

AGRICULTURE

The total area under cultivation and the total volume of the crops was approximately the same as for the preceding year, although the total value of all crops was reduced more than 25 per cent. Losses from typhoons and plant pests and diseases were less than usual. The greatly reduced prices for Philippine products in the world's markets resulted in a great curtailment of buying power within the Islands. Sales of commodities were reduced 23 per cent and the general price level by 27 per cent.

EXTERNAL TRADE

The value of the foreign trade of the Islands decreased to \$203,000,000 (the lowest point reached since 1922) as against \$256,000,000 for 1930. This decline of 20.7 per cent, is chiefly attributable to the general decline in prices, as the volume of trade was about the same for the two years considered. The favorable balance of commodity trade with the world and with the United States was maintained, although the balance with countries other than the United States was unfavorable, due chiefly to the large unfavorable balance with Japan and China. The United States continued to predominate in Philippine external trade, receiving 80 per cent of the total Philippine exports (an increase of over 1 per cent over the preceding year) and supplying 63 per cent of the imports (a decrease of

almost 1 per cent from the preceding year). The total trade with the United States represented 71 per cent of the total external trade of the Islands. Shipments from the United States amounted to \$62,139,683; shipments to the United States amounted to \$83,422,783 (in both cases a decrease of about 20 per cent from the preceding year).

EDUCATION

There were 1,175,380 pupils enrolled in the public schools as compared with 1,224,548 for the preceding year. Of this number all but 75,000 were in the elementary grades. Of the secondary enrollment 16,811 were in vocational schools. The Insular Government appropriations for public education amounted to almost \$9,000,000, or over 27 per cent of the revenues. The enrollment in private schools operating under government approval numbered 100,399 as compared with 98,644 for the preceding year.

HEALTH

The estimated general death rate for the year 1931 was 22.07 as compared with the revised rate of 22.78 for the year 1930. In Manila the rate improved from 27.26 to 25.61; infant mortality from 160.24 to 151.58. Cholera, which appeared in the Islands in 1930 after an absence of several years, causing 3,079 deaths, resulted in 766 deaths in 1931. The most serious health problem in the Islands is that presented by the prevalence of tuberculosis, it being estimated that more than 10 per cent of the people are afflicted with the disease. The subject is receiving earnest attention, and preventative and remedial measures are being studied and initiated.

VIRGIN ISLANDS

By WILLIAM ATHERTON DUPUY

EXECUTIVE ASSISTANT TO THE SECRETARY OF THE INTERIOR

ISLAND UNITS AND POPULATION

The latest acquisition of non-contiguous territory governed by the

United States is the Virgin Islands, the chief units constituting which are St. John, 20 square miles in

VI. TERRITORIES AND SPHERES OF INFLUENCE

area and a population of 765; St. Thomas, with an area of 28 square miles and a population of 9,834, and St. Croix, with 84 square miles and a population of 11,413. Thus the population of the Virgin Islands amounts to 22,012, of which 78.3 are negroes, 12.4 mixed bloods, and a little more than nine per cent white.

GOVERNMENT

These Islands were acquired from Denmark in 1915 and were governed by the Navy until 1931 when they were transferred to the Interior Department and a civilian governor was appointed. Since that time a civilian government has been set up and has functioned with the idea of the economic and social development of the Islands. Congressional appropriations for this government for the past fiscal year amounted to about \$400,000.

SUGAR PRODUCTION AND SHIPPING

The prosperity of the Virgin Islands has depended almost entirely on two factors—sugar production in St. Croix and harbor activities in St. Thomas. Other activities are largely incidental to these. Shipping and bunkering in St. Thomas have materially declined. On the other hand, sugar production in St. Croix during the fiscal year 1932 was approximately 250 per cent over the sugar production for the year 1931, which naturally provided much more employment. The low sugar prices, however, mean that the increased production will represent a loss rather than a profit to the producers.

BUSINESS AND BANKING

Business and employment in St. Thomas have declined not merely through the slump in shipping but also because of the reduced purchasing power incident to the withdrawal

of revenue activities. Income tax assessments in St. Thomas for the calendar year 1931 totaled \$3,000 as compared with \$15,000 the calendar year 1930.

The National Bank of the Danish West Indies holds a charter protected under the terms of the treaty with Denmark and which does not expire until 1934. The legal currency of the Islands is still used by this bank and is in Danish West Indies francs, of which 5.20 are equivalent to one United States dollar. Thus we still have a peculiar situation in that this American dependency still uses Danish money in all its financial operations, and these American citizens in doing business with continental United States must convert their money.

The recent action of Congress in making the national bank act applicable to the Virgin Islands has opened the way for the establishment of a national bank there and plans are well advanced for a new bank to take over the national bank of the Danish West Indies. The directors of the present bank, which is in the process of gradual liquidation, have signified their intention of withdrawing from the Islands.

AGRICULTURE AND INDUSTRY

The present policy of administering the Islands has in mind the distribution of land to citizens to be used for purposes of subsistence farming. It is seeking to lead the citizens to the cultivation of various crops such as small vegetables, cotton, sugar, and in the raising of livestock, and aiding in the reestablishment of a fishing industry, a bayrum industry, and charcoal industry. It is attempting to find a sale in continental United States for the handiercraft productions of the Islands, including hooked rugs, pottery, baskets, linens, and mahogany products.

GUAM AND AMERICAN SAMOA

GUAM AND AMERICAN SAMOA

By H. M. LAMMERS

COMMANDER, U. S. N.; OFFICE OF ISLAND GOVERNMENTS, NAVY DEPARTMENT

GUAM

Government.—Captain E. S. Root, U. S. Navy, has been Governor of Guam since May 15, 1931. The new Guam Congress, organized into two houses, has continued to function in an advisory capacity. The upper house is known as the Council and the lower house as the Assembly. Commissioners and Deputy Commissioners of the districts have been changed from an elective to an appointive status. The codes and legal procedure of the judicial system are in process of revision.

Population.—In 1931 the native population of Guam was 17,909. The native population on June 30, 1932, was 18,297. These figures do not include naval personnel and their families, 592, attached to the Naval Station, Guam, or non-natives and their families, 784, residing in Guam. The total population of Guam on June 30, 1932, was 19,673. The natives of Guam are Chamorros of Maylayan origin with strains of Spanish, Mexican, Philippine and Chinese blood.

Health.—There are no civilian physicians nor hospitals in Guam. The native population is dependent upon the local government for prevention of disease and for medical care. The naval medical officers assigned to the Naval Station, Guam, serve the island government, and are assisted by Navy enlisted personnel, Navy nurses and native nurses trained in the naval hospital and the island government hospital. Since the occupation of Guam by naval forces in 1898, the native population has increased from about 9,000 to over 18,000, mostly as a result of the prevention of disease and proper medical care. For the fiscal year 1932, the Federal Government appropriated \$22,000 to the island government for medical purposes. There were no serious epidemics in Guam during the past year, and health conditions remain good.

Education.—The Department of Education of Guam consists of a

head who is a chaplain in the Navy; a Superintendent of Education, an American civilian; nine American teachers; 137 native teachers, and the necessary clerical force. There are 26 public schools. Enrollment averaged 3,676 for the 1932 school year. The public school system extends from the primary grades through senior high school. Emphasis is being placed on vocational training, vocational guidance now being given to every boy and girl above the third grade in certain schools. In addition to the public school system, the government conducts schools at small cost for American children. There is one private school in Guam with an enrollment of 145. The Federal Government appropriated \$16,000 for expenditures by the island government for educational purposes in 1931. Total expenditures for school purposes were \$58,662.24.

Agriculture.—A United States agricultural experiment station was established in Guam through an act of Congress appropriating \$5,000 for the fiscal year, 1909. This station has proved of invaluable assistance to the native population, whose sole means of support, other than revenues derived from the Navy Department, is agriculture. Because of the necessity for economy, the station had to be discontinued after the fiscal year 1932, and the island government assumed the responsibility for it with a view to reestablishing it as an agricultural school farm. Copra is the only export of any importance. In 1931 the copra exports were 1,948 tons valued at \$72,012.25. The 1932 exports were 1,228 tons valued at \$43,371.14.

Banking.—The Bank of Guam is a division of the Treasury of the Naval Government of Guam, and is authorized to conduct the business of commercial banking. The capital stock, \$15,000, is owned by the island

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government. During the fiscal year the gross earnings of the bank were \$25,825.21. The net earnings were \$8,303.63.

Shipping.—The most important requirement of trade in Guam is the establishment of regular steamer service with the United States and the Philippines. Imports and exports are handled largely by Federal Government vessels. Regular service by one American flag commercial vessel has been established, this ship arriving at Guam about every three months. The traffic in passengers and cargo to and from Guam is not at present sufficient to interest a line of passenger vessels in making Guam a regular port of call.

Revenues.—In addition to the appropriations made by the Federal Government, the revenues and expenditures of the island government for the fiscal year 1931 were \$146,219.59 and \$159,987.38, respectively. For the fiscal year 1932, the revenues were \$170,850.35 and expenditures \$145,444.77.

AMERICAN SAMOA

Government.—Captain G. S. Lincoln, U. S. Navy, retired, was governor from August 2, 1929, to July 8, 1932. Captain G. B. Landenberger, U. S. Navy, has been governor since July 8, 1932.

Revenues.—The total customs department revenue from all sources for the year 1930-31 was \$52,126.19; and for the year 1931-32, \$43,901.37. Prior to 1931 poll and school taxes were levied on all males five feet two inches or more in height. For the calendar year 1931 taxes were levied on males of eighteen years and older. The tax for 1931 was \$10 per taxpayer, but for the calendar year 1932 has been reduced to \$9 per taxpayer.

Copra.—Production of copra for the calendar year 1930 was 1,619 tons. The contract price was \$83.40 per ton, and the gross receipts \$135,028.18. For the calendar year 1931, copra production was only 249 tons due to the hurricane of January 15, 1931, which did great damage to the coconut trees. The contract price

was \$50.15 and the gross receipts \$17,195.48. The contract price for the first six months of 1932 was \$33 per ton. It will be several years before the copra production gets back to normal.

Banking.—The Bank of American Samoa is owned by the island government. It does a general banking business. In the last five years there has been an increase of 14% in commercial deposits and an increase of 137% in savings deposits. The net earnings of the bank for the fiscal years 1931 and 1932 were \$3,008.25 and \$2,735.37, respectively.

Population.—The population of American Samoa, including Swain's Island, on June 30, 1932, was 10,272. This represents an increase of nearly 81% since 1900. Over 85% of the native population are full blooded Polynesians.

Education.—There are 24 public schools and 4 private schools in American Samoa with enrollments of approximately 2,100 and 400, respectively. The teaching staff of the public schools consist of the director of education and 54 teachers, of whom 48 are Samoans. Teachers' salaries vary between \$30 and \$75 per month for white teachers and between \$5 and \$40 per month for native teachers. The course of instruction goes in general only to the fourth grade except at one school, where all grades including the ninth are taught. Instruction includes music, domestic arts, manual training and athletics.

Roads.—The islands of American Samoa are mountainous. Villages are located along the shore line and are reached generally by trails or by boat, through passages blasted through the coral reefs. On the island of Tutuila there is one road along the southern coast 27 miles long. It may be traversed by automobile, but is narrow, crooked and has many sharp turns. For the maintenance of roads, trails, channels, water works and other public works, the government spent \$31,363.63 during 1931.

Health.—There was one epidemic of influenza in American Samoa, dur-

THE DISTRICT OF COLUMBIA

ing the fiscal year 1932, affecting 3,251 persons and 15 deaths, were attributed to it. Tuberculosis, pneumonia and filariasis were the cause of more than half of the deaths during the year. Health education and

more hospital facilities are necessary to combat the first two causes of death mentioned. Great strides in the elimination of filariasis have been made since American administration began. Filariasis is an insect borne disease.

THE DISTRICT OF COLUMBIA

BY W. REED WEST

ASSOCIATE PROFESSOR, GEORGE WASHINGTON UNIVERSITY

FIREARMS

In the District of Columbia, as elsewhere, the sale of firearms and the carrying of dangerous weapons has become a serious problem. The increase in crimes of violence has been due in part to inadequate legislation upon this subject. An act (72nd Cong., 1st Sess., Chap. 465), attempts to correct this defect. The old law had prohibited the carrying of concealed weapons, with certain exceptions, or the open carrying of weapons with unlawful intent. It had required the licensing and bonding of dealers in dangerous weapons, had prohibited sales to minors, and had required that dealers keep registers of purchasers and report monthly to the superintendent of police upon sales. The new law prohibits the possession of machine guns, sawed-off shot-guns, silencers, black-jacks, and certain other instruments of crime, except by certain designated classes of persons and institutions. A more careful system of licenses for the carrying of pistols is prescribed. More detailed regulations for records by dealers are prescribed; no sales of pistols are to be made to persons who have been convicted of a crime of violence; no pistol is to be delivered within forty-eight hours after the application for purchase; and records of applications for purchase are to be sent to the police department within six hours. The most significant part of the act, however, is Section 2, which provides that if any person shall commit a crime of violence while armed he may, in addition to the penalty for

the crime, be punished for a first offense by imprisonment for not more than five years; for a second offense not more than ten years; for a third offense not more than fifteen years; and for a fourth offense not more than thirty years.

PAROLES

The Federal Parole Board has had jurisdiction in the past over the parole of District prisoners. Paroles for District prisoners committed for offenses in the future will be referred to a new body to be known as the Board of Indeterminate Sentence and Parole (Chap. 492). This Board will consist of three residents of the District, appointed by the Commissioners of the District, receiving no salary, and serving ultimately for staggered terms of seven years. It will receive reports from the wardens, psychiatrists and other officials, examine into the physical, mental and moral records of the prisoners, and recommend the treatment that in its opinion will best accomplish the prisoners' reformation. The Board will appoint parole officers subject to the approval of the Commissioners. Courts will impose penalties for a maximum period not to exceed the maximum period fixed by law and a minimum not to exceed one-fifth of the maximum period fixed by law. In case of a life penalty eligibility for parole will begin at the close of fifteen years. After service of minimum sentence the prisoner may be placed on parole if the Board believes that his training fits him for release, that there is reasonable

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probability that the prisoner will not violate the law, and that the release is not incompatible with the welfare of society. The Board may fix the limits of residence and other terms of release, until the expiration of the maximum term of the sentence less good-time allowance. Where a released prisoner breaks his parole, he will serve the remainder of his term (unless again paroled) without having the period served on parole deducted therefrom.

CREDIT UNIONS

Despite the general spread of credit unions they were not authorized by law in the District until the passage of the act of 1932 (Chap. 272). The act as passed defines a credit union as "a cooperative society organized for the purpose of promoting thrift among its members and creating a source of credit for them for provident purposes." The Commissioners of the District have power to approve the organization certificate of a proposed credit union. The Comptroller of the Currency, who supervises other banking institutions for the District, will have supervisory jurisdiction over credit unions. Annual licenses with a fee of \$15 are required, but these may be revoked or suspended by the Commissioners in case of bankruptcy or insolvency or violation of law. Interest rates not exceeding one per cent a month are permitted. A union may borrow up to forty per cent of its capital. Members must be residents of the District or do business or be employed therein, and must have a common bond of occupation or reside within a well-defined neighborhood or community. In addition to various officers, a board of directors and a credit committee, there is to be in each union a Supervisory Committee with power to audit books, by unanimous vote to suspend officers, directors or members of the credit committee until the following members' meeting, and by majority vote to call extraordinary meetings of shareholders. This act may be expected to relieve somewhat the needs of persons who require small

loans. It will not, of course, take care of persons who cannot for any reason become members of credit unions. Only one license has been issued under the old "small loan law" of the District, which apparently has been inadequate to provide the proper machinery for loans to small borrowers. Such of these as are not members of credit unions will still be largely dependent upon loan agencies across the "District line" and so out of the jurisdiction of the District authorities.

WILD-LIFE SANCTUARY

The hunting laws of the District have been so amended (Chap. 478) as to establish a bird sanctuary along the Potomac and its tributaries. Many migratory birds now threatened with extinction will find a refuge in this area. It is thought that in time its bird life may become one of the attractions of the District.

LICENSES

The old license law of 1902, which had become antiquated, has been adjusted to meet modern conditions (Chap. 366). Old occupations, flourishing in 1902, have now nearly vanished, while new forms of business have come into existence. The new law is in part regulatory. In some instances the license fee is to cover the cost of inspections, in others to compensate for the use of public space, or as in the case of taxicabs, is based partly on a theory of exceptional need for policing and supervision.

MINOR LEGISLATION

The use of union labels is authorized and protected against infringement in an act (Chap. 47) that was made necessary by the fact that a union cannot register its label as a trade-mark, since the union does not own the articles to which the labels are attached. Insurance corporations organized in the District are required to maintain their principal offices in the District (Chap. 189). Formerly it was sometimes necessary for the department of in-

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insurance to go to the expense of trips into other jurisdictions in order to examine the books of District corporations. The machinery for compelling testimony before trial boards of the police force and fire department has been improved (Chap. 118); the provisions for distributing water from the District mains to neighboring Maryland communities have been liberalized (Chap. 100); the Superintendent of Schools has been given authority to make temporary appointments between meetings of the Board of Education (Chap. 131); the limit of \$25,000 income is removed from the law permitting charitable, educational and other similar institutions to hold property other than that necessary for the purposes of the institution (Chap. 121); bonds are required for contractors on public works of the District (Chap. 441), and the District is given the authority, already possessed by the Federal Government within the District, to acquire lands upon a declaration of taking, leaving the former owner with the right to just compensation of which the amount will be determined (Chap. 462).

THE BONUS ARMY

By reason of its location the Dis-

trict has much business of a national character. The purposes and history of the "bonus army" of 1932 are matters of national rather than District concern. However, the policing and sanitary problems connected with the presence of this "army" were burdens that fell upon the District officials until the final expulsion was begun. It constituted an example of the way in which District officials fall heir to Federal problems.

ECONOMIC CONDITIONS

Compared with other parts of the country the District has suffered lightly from the effects of the depression. Its largest "industry" consists in carrying on the work of the Federal Government, and this work continued until the beginning of the present fiscal year with little change. A Federal economy program, however, beginning in July, resulted in greatly reduced appropriations and in flat salary reductions among nearly all except the lowest-paid government workers. Obviously, business in the District is being adversely affected by the decreased buying power of this large class of residents.

SPHERES OF AMERICAN INFLUENCE

By ROY MALCOM

PROFESSOR, UNIVERSITY OF SOUTHERN CALIFORNIA

CUBA

Complaint Against U. S. Tariff.—

In the late fall of 1931 dispatches from Cuba indicated that a number of complaints were coming from political leaders there concerning the so-called tariff discrimination against Cuba by the United States. President Machado went so far as to say that 80 per cent of Cuba's economic ills were due to the American discriminating tariff. Some of the leading newspapers of Havana charged that the United States had been unjust to Cuba for four years and

that Cuba should not any longer honor the reciprocity treaty. There was also much criticism of Cuban financiers who had contracted huge public works loans through American banks with the approval, apparently, of the American State department. A short time later some of these criticisms were withdrawn.

Seligman Fiscal Study.—A prominent American economist, Prof. E. R. A. Seligman of Columbia University, had been retained by the Cuban government to make a scientific study of the Republic's fiscal system.

VI. TERRITORIES AND SPHERES OF INFLUENCE

After an intensive study, Prof. Seligman made his report Feb. 9. The report called attention to three outstanding factors; the general economic world crisis, the special conditions of the sugar market, and the actual fiscal system of the government.

Higher Cuban Tariffs.—On March 17 President Machado signed a decree which raised tariffs on lard, automobiles, and trucks, which included importations from the United States. The chief purpose here was to stimulate Cuban industries.

Loan Project.—It was reported in July that Cuba was arranging for a \$2,278,215 loan from American banks. Provision for this loan was included in the general budget of 1932-1933.

HAITI

Dissolution of Union Patriotique.—Late in November, 1931, a political organization in Haiti, known as the Union Patriotique, was dissolved by the government. This organization was initiated in 1915 as a protest against the military occupation of Haiti by the United States. It had stood for a number of years for assumption of full Haitian control of its own affairs and had been instrumental in bringing about the McCormick Senatorial investigation of Haitian affairs, as well as the investigation carried out by the Forbes Commission which was sent to Haiti in February, 1930, by President Hoover.

National Guard Extends Control.—It was announced Feb. 1, 1932, that the Haitian National Guard had taken over the Military Department of the West, one Haitian officer taking the place of two U. S. Marine officers. This action was in line with the policy of the Hoover administration to transfer authority to Haitian officials both in civil and military departments as soon as it seemed feasible.

Charges Arising From U. S. Occupation.—Early in February some sensational charges were placed before the American Senate Finance Committee regarding the American occupation of Haiti. Among the

charges, a few can be listed: First, place the American financial advisers, provided by the Treaty of 1915 with Haiti, had been absolute dictators in Haiti; second, the American government had used its position under the Treaty of 1915 to compel Haiti to seek large loans in the United States; third, the American High Commissioner, General Russell, had used his influence in pushing a loan of \$4,000,000. Sixteen million dollars were borrowed from the National City Bank of New York. It was further charged that General Russell had interfered in the reelection of President d'Artigave in 1922 because of the President's opposition to the loan. The National City Bank was accused of profiting by the neat sum of two or three million dollars through having purchased depreciated Haitian railway bonds while it was acting in the capacity of financial agent for the government. It was further charged that the American Financial Adviser in Haiti at present was there without legal status because the treaty of 1915 had never been legally extended from 1926 to 1936, not having been ratified either by the U. S. Senate or by Haiti. The Haitian public seemed to feel that the loan of \$16,000,000 had as its chief purpose the political control of the Republic.

State of Haitian Finances.—The American Department of State on the same day these charges were placed before the Senate Committee announced that "Haiti's total debt at the time of the American occupation in 1915 was about \$31,700,000. This was mostly for foreign loans issued in France, some for as low as 72.3 less gratuities. There had been several years of default in some of the amortization payments, and interest was met by internal borrowing at rates of 59, 56 and 47; salaries, etc., were in arrears. Under the American financial administration all claims were adjudicated and all foreign and internal indebtedness liquidated for a total of \$23,660,000. There is now no internal debt, and the foreign indebtedness was reduced by December 31, 1931, to \$14,329,

SPHERES OF AMERICAN INFLUENCE

161.76. A surplus has been accumulated in the Haitian Treasury, in addition, which amounted on September 30, 1931, to \$3,292,568.30."

U. S.-Haiti Treaty.—On September 3 a Treaty of Friendship was signed by Dana G. Munro, U. S. Minister, at Port-au-Prince, and Albert Blanchet, Foreign Minister of Haiti. According to the terms of the treaty the United States will relinquish part of its control over Haitian affairs in 1934, some two years earlier than formerly agreed. The withdrawal of American troops under the treaty was to begin in December, 1934. In order to safeguard the security of \$14,500,000 in American bonds now outstanding in Haiti, the treaty provides that the American Receiver General of Customs and the Financial Adviser be replaced by a Fiscal Representative and a Deputy Fiscal Representative who are to be appointed by Haiti upon nomination by the President of the United States. It was reported on Sept. 21 that the Haitian National Assembly had rejected the new treaty by unanimous vote. This treaty was to take the place of the Treaty of 1915. In reporting to the National Assembly the committee in charge of the matter claimed that the new treaty did not conform with the recommendations of President Hoover's message to Congress in 1929, nor with those of the Forbes Commission. The Committee further charged that the new treaty was the Treaty of 1915 "reinforced." The American State Department announced on October 10, emphasizing earlier statements, the purpose of the United States to withdraw its Marines from Haiti, but warning that this could not be done until 1936 if the Assembly persisted in its opposition to the new treaty, which provides for withdrawal in 1934.

NICARAGUA

Election Supervision.—Early in January the American State Department announced that it had designated Rear Admiral Clark Howell Woodward, U. S. N., as chairman of the National Board of Elections

which was to supervise the presidential elections in Nicaragua in October. The following statement was issued by the State Department: "The sole interest of the United States as regards these elections is that by means of fair and open elections, at which everybody who is entitled to vote has an opportunity of doing so, the preference of the Nicaraguan people may freely be expressed. The United States Government of course will not support, nor will it oppose, the candidacy of any person for the nomination or for election to the Presidency." It was reported from Managua Jan. 12 that the Supreme Court of Nicaragua had confirmed the appointment of Admiral Woodward. The American government announced that 300 additional marines would be sent to Nicaragua to supervise the coming election. This was contrary to the policy announced earlier by the Hoover Administration that our marine force was to be withdrawn as early as practicable. It was reported in January that the number of marines still in Nicaragua was in the neighborhood of 1,000. On June 23 Rear Admiral Clark H. Woodward, U. S. N. was sworn in before the Supreme Court of Nicaragua as President of the National Board of Elections to supervise the general elections in the fall. Admiral Woodward indicated that this was the final step in the American program to aid Nicaragua.

Insurgent Activities.—Early in February Brig. Gen. Randolph C. Berkeley, commanding the Second Brigade of United States Marines, reported insurgent activities were on the increase. April saw a number of bloody conflicts between Nicaraguan National Guardsmen, commanded by U. S. Marine officers, and the Insurgent groups. Four American Marine Lieutenants were killed. Senator Lewis of Illinois on April 23 demanded in the United States Senate that the Marines be immediately recalled from Nicaragua. August Sandino, the leader of the Insurgents, stated in an article published in Honduras on June 15 that a number of American Marines had been

VI. TERRITORIES AND SPHERES OF INFLUENCE

killed, and that he and his followers would "oppose by force of arms whatever election farce may be attempted with the aid of foreign supervision."

U. S. Treaty Endorsed.—On March 13 President Moncada issued a statement in which he heartily endorsed the Bryan-Chamorro Treaty of 1916. Under this treaty, it will be recalled, the United States, for the sum of \$3,000,000, acquired "in perpetuity the exclusive proprietary rights necessary and convenient for the construction, operation and maintenance of an interoceanic canal." The President intimated that the treaty was binding upon the United States and Nicaragua alike, and could not be tampered with by courts, congresses, or even the League of Nations.

Party Quarrels.—Early in the summer quarrels and rivalries broke out in the Liberal party, resulting in the development of two factions, each claiming to be the official voice of the party. Admiral Woodward, the chairman of the United States Election Mission, ordered a plebiscite to be held not later than August 7 to determine a legal Liberal governing body. He reported that he could deal only with the legally constituted governing body of the party in the election.

The Presidential Election.—In early September the Conservative party nominated former President Adolfo Diaz for the presidency, while the Liberal party had already nominated Dr. Juan B. Sacasa for the office. Both parties were notified by Admiral Woodward that it would be possible for each candidate to visit distant sections of the country in the interest of their campaign through means of transportation furnished by the Mission. Some 500 United States Marines were sent to different cities to assist the American officials in carrying out the details of the election.

Election of Sacasa.—On November 6 the national election was held, resulting in the election of Dr. Juan

B. Sacasa, Liberal candidate, as President. American Marines under the command of Rear Admiral Woodward supervised the election. The following editorial comment was made by *Neuva Prensa*, the leading Conservative organ: "Admiral Woodward returns to his country with a tranquil conscience, sure of having completed his duty with loyalty and energy, having maintained by his and his subordinates' attitude the honor and impartiality of the United States, making certain free, just and honest elections."

Sandino Protest.—Word came from Mexico City on November 7 through a representative of General Sandino that the Insurgent leader would not recognize the winner in the election and planned to call a new election.

SAN DOMINGO

In November, 1931, the American Department of State announced that owing to the bad economic conditions in San Domingo, which had been emphasized by the hurricane of September, 1930, a program was being adopted "giving priority to the interest charges on the foreign loans but temporarily diverting certain customs revenues from the payment of amortization on these loans, applying the amounts so diverted to the maintenance of vital governmental functions and the preservation of law and order upon which the ultimate payment of the external debts must depend."

PANAMA

On June 5, 1932, Dr. Harmodio Arias, Doctrinal Liberal, was elected to the presidency of Panama. The election was, on the whole, free from serious disturbances. Dr. Horacio F. Alfaro, Panaman Minister to the United States, expressed the appreciation of his government to the United States for the cooperation received from U. S. Army and Naval authorities and U. S. Minister to Panama, Roy T. Davis, in securing a fair election.

MARITIME JURISDICTION

MARITIME JURISDICTION

BY CHARLES E. HILL

PROFESSOR, GEORGE WASHINGTON UNIVERSITY

PAN-AMERICAN CONVENTION OF MARITIME NEUTRALITY

Convention Proclaimed.—On May 26, 1932, President Hoover proclaimed the Convention on Maritime Neutrality adopted by the Pan-American Conference at Havana, Feb. 20, 1928. Ratifications have also been deposited with the Pan-American Union by Panama, Nicaragua and Bolivia. Colombia and Paraguay have approved the Convention.

Visit and Search.—The Convention affirms the right of belligerent war vessels to visit and search merchantmen upon the high seas and in belligerent territorial waters. This right may also be exercised by submarines, but subject to the same rules that apply to other war vessels. The right to attack offending merchantmen is permitted only for failure to stop or to observe instructions after being hailed and then only after provision has been made for the safety of crew and passengers. Visit does not embrace the right to take the ship to a home port for the purpose of conducting a more thorough search of the cargo than is possible at sea. The legality of this method of search by Great Britain during the World War was vigorously protected by neutrals.

Repairs.—The right to repair damages in neutral ports resulting from the gun fire of an enemy is not permitted. This is an improvement upon the Hague Convention on neutral rights and duties in maritime war, 1907, article 17, which permits repairs to belligerent war-ships in neutral ports that "are absolutely necessary to render them seaworthy."

Revictualing.—In regard to revictualing in a neutral port, the Hague Convention allows a belligerent war-vessel to bring its supplies up to the peace standard. The Havana Convention allows the neutral to determine the quantity that may be taken on.

The Havana Convention restricts also in this respect belligerent merchantmen serving as transports or auxiliary vessels, including armed merchantmen. It thus embodies the rule laid down by Chile as a neutral in December, 1914.

Fuel.—The Havana Convention sets no limit to the amount of fuel a belligerent war-vessel may take on in a neutral port, but leaves this to the discretion of the neutral. The Hague Convention permitting the taking on of sufficient fuel in a neutral port to reach the nearest home port proved inadequate during the World War. Both German and British war ships took on fuel in Chilean ports sufficient to carry them thousands of miles and used it not for a return voyage but to carry on naval operations in the South Pacific. Thereupon Chile limited them to the amount of fuel that would take them to the nearest port in a neighboring neutral country. The restriction on refuelling applied also to belligerent merchantmen serving as transports or auxiliary vessels including armed merchantmen. Delegations of the United States and Cuba made reservations on the revictualing and refuelling restrictions applying to armed merchantmen.

Reconversion.—Another advance in the Havana Convention over the Hague Convention pertains to the reconversion of belligerent auxiliary vessels into merchantmen. Reconversion must take place in the ports of the country to which they belong or of an allied country. The names of the vessels must be officially communicated by the belligerent government to the neutral government and give assurance that the vessels will not again be used as naval auxiliaries. The status of such vessels was discussed at The Hague in 1907, but no agreement was reached.

VI. TERRITORIES AND SPHERES OF INFLUENCE

The Trend of Restrictions on War Vessels.—The Havana Convention recognizes the trend that more and more belligerent war vessels are not to use neutral ports for repairs or for replenishing their supplies except in case of *force majeure*. During the World War several neutral governments adopted this rule, notably the Netherlands, Norway, Sweden, Denmark, Spain, and Paraguay. The present rather than under the imminence of war might be an advantageous time for the government of the United States to revamp its neutrality laws in order that they may comply with conventional and with international law.

ZEELANDIA

Maritime Claim.—The *S. S. Zeelandia*, or the Royal Holland Lloyd *v.* the United States, decided by the Court of Claims, Dec. 7, 1931, is one of the most important cases during the year pertaining to maritime jurisdiction. The *Zeelandia* had taken on a cargo of coffee, cocoa, wool, tallow, and tobacco at various South American ports for the Netherlands Oversea Trust in Holland and also some United States naval officers and mail destined for New York. She could have discharged the passengers and the mail by tugs beyond the waters of the United States, but relying on assurances from customs officials in New York that the vessel might come in and be cleared without hindrance, she came into the harbor Oct. 16, 1917. On Oct. 22, she asked for clearance papers and was refused primarily for the purpose of having the vessel available for transport purposes and for preventing the cargo from entering the Netherlands. On March 21, 1918, she was seized and requisitioned for the active service of the United States. The owners presented a claim for the delay from Oct. 22, 1917, to March 20, 1918. Congress passed a special act conferring jurisdiction upon the Court of Claims.

Award by Court of Claims.—The Court held that the refusal to grant clearance did not constitute the taking of private property for a public purpose, and that the government is not

liable under its own laws for the illegal and unauthorized acts of its officers. The claimant having no remedy under the Constitution or laws of the United States, the Court proceeded to examine the principles of international law and found that thereunder "governments are responsible, in their international intercourse, for the acts of their authorized agents, and if such acts were mistaken, or wrongful, liability arises against the government itself for the consequences of the error or wrong." Consequently, an award of \$446,826.22 was made to the owners. The case shows how a regular national court may take the place of an international tribunal in the settlement of international claims.

CONFERENCE FOR THE UNIFICATION OF LAWS OF RIVER NAVIGATION

European Rivers.—In November and December of 1930 the diplomatic representatives of twenty-one European states met at Geneva and adopted three conventions, signed December 9, 1930, the first relating to collisions in river navigation; the second, to registration of vessels and the determination of property rights; and the third, to administrative measures for attesting the right to the flag. These conventions are in process of ratification. The preparations for the conference were made by the Consultative Commission on Communications and Transit of the League of Nations.

St. Lawrence Deep Waterway.—If the St. Lawrence deep waterway treaty, negotiated in the early part of this year, is approved by the governments of the United States and Canada a similar codification of the laws of river navigation will be desirable not only for the vessels of the two parties but for the vessels of all states that will use this waterway project.

BIBLIOGRAPHY

The best book of the year on maritime jurisdiction is Gilbert Gidel's *Le Droit International Public de la Mer*, Paris, 1932, two volumes. In the first volume he treats the high sea,

MARITIME JURISDICTION

including oceanography and international marine conferences. The old definition of a ship, floating craft of all descriptions, no longer holds. A ship may be a hydroplane, submarine, or an airplane as well as a surface craft. In the second volume Gidel treats inland waters, rivers, and lakes. The territorial sea is left for a third volume.

PART THREE

GOVERNMENTAL FUNCTIONS

DIVISION VII

PUBLIC FINANCE AND TAXATION

NATIONAL EXPENDITURES AND REVENUES

BY MERLIN H. HUNTER

PROFESSOR, UNIVERSITY OF ILLINOIS

DIFFICULTIES OF ADJUSTMENT

The past year has been a difficult one for all governmental units. Expected receipts did not materialize while unexpected expenditures had to

be met. The result was that large deficits were encountered. The following table, taken from President Hoover's budgetary message, shows this condition for the Federal Government.

SUMMARY OF FEDERAL RECEIPTS AND EXPENDITURES

(Exclusive of postal revenues and postal expenditures paid from postal revenues)

	1933	1932	1931
General fund receipts.....	\$2,473,515,772.00	\$2,204,257,200.00	\$3,103,336,105.16
Special fund receipts.....	103,014,430.00	34,621,600.00	86,303,975.14
Total, general and special fund receipts.....	<u>\$2,576,530,202.00</u>	<u>\$2,238,878,800.00</u>	<u>\$3,189,640,080.30</u>
General fund expenditures...	\$3,889,223,050.00	\$4,284,411,800.00	\$3,987,148,133.52
Special fund expenditures....	107,449,400.00	77,428,000.00	104,515,774.89
Total, general and special fund expenditures.....	<u>\$3,996,672,450.00</u>	<u>\$4,361,839,800.00</u>	<u>\$4,091,663,908.41</u>
Excess of general and special fund expenditures over general and special fund receipts.....	\$1,420,142,248.00	\$2,122,961,000.00	\$ 902,023,828.11
Excess of trust fund receipts over trust fund expenditures	3,192,800.00	277,315.00	.....
Excess of trust fund expenditures over trust fund receipts.....	.....	.....	693,016.96
Total, excess of expenditures.	<u>\$1,416,949,448.00</u>	<u>\$2,122,683,685.00</u>	<u>\$ 902,716,845.07</u>

FEDERAL APPROPRIATIONS

The appropriations recommended by President Hoover in his budgetary

message, together with increases and decreases, are shown in the following table, for the fiscal year 1933.

NATIONAL EXPENDITURES AND REVENUES

	Estimates, 1933	Increases	Decreases
Legislative establishment:			
Senate.....	\$ 3,241,564.00		\$ 7,728.00
House of Representatives.....	8,177,374.00		6,238.00
Architect of the Capitol.....	4,257,415.00		5,401,007.00
Botanic Garden.....	231,022.00	\$ 57,140.00	
Library of Congress.....	2,489,777.00		72,305.00
Government Printing Office.....	3,274,000.00		20,000.00
Miscellaneous.....	185,050.00		3,000.00
Total, legislative establishment.....	\$ 21,856,202.00	\$ 57,140.00	\$ 5,510,278.00
Executive office.....			
Independent establishments:	\$ 429,380.00		\$ 43,000.00
American Battle Monuments Commission.....	200,000.00	\$ 97,750.00	
Arlington Memorial Bridge Commission.....	1,000,000.00		
Board of Mediation.....	169,865.00		18,320.00
Board of Tax Appeals.....	635,000.00		18,640.00
Bureau of Efficiency.....	199,940.00		330.00
Civil Service Commission.....	1,542,720.00		115,622.00
Commission of Fine Arts.....	9,775.00		
Employees' Compensation Committee.....	4,986,926.00	255,946.00	
Federal Board for Vocational Education.....	10,285,405.00	199,425.00	
Federal Farm Board.....	1,880,000.00		100,020,000.00
Federal Oil Conservation Board.....	17,500.00		2,500.00
Federal Power Commission.....	362,020.00	43,550.00	
Federal Radio Commission.....	431,360.00		34,020.00
Federal Reserve Board.....	1,692,800.00	83,600.00	
Federal Trade Commission.....	1,266,500.00		495,266.00
General Accounting Office.....	4,290,820.00		6,800.00
George Rogers Clark Sesqui-centennial Commission.....	500,000.00		300,000.00
George Washington Bicentennial Commission.....	452,230.00	114,035.00	
Interstate Commerce Commission.....	9,661,410.00		2,251,063.00
Mount Rushmore National Memorial Commission.....	25,000.00	25,000.00	
National Advisory Committee for Aeronautics.....	1,012,310.00		38,760.00
National Capital Park and Planning Commission.....			4,000,000.00
Personnel Classification Board.....	195,116.00		23,734.00
Porto Rican Hurricane Relief Commission.....			1,000,000.00
Protecting interests of the United States in oil leases and oil lands.....			60,000.00
Public Buildings and Public Parks of the National Capital.....	4,701,575.00		1,092,042.00
Public Buildings Commission...	125,000.00		
Smithsonian Institution.....	1,259,964.00	44,540.00	
Supreme Court Building Commission.....	2,000,000.00		1,750,000.00
Tariff Commission.....	1,150,500.00		89,500.00
United States Geographic Board.....	11,678.00	1,000.00	
U. S. Shipping Board and Merchant Fleet Corporation.....	423,270.00		36,982,730.00
Veterans' Administration.....	1,072,064,627.00	124,624,649.00	
Total, Executive Office and independent establishments	\$1,123,182,591.00	\$125,487,495.00	\$148,342,327.00
Department of Agriculture.....	\$ 197,454,976.00		\$ 49,828,154.00
Department of Commerce.....	44,719,304.00		9,615,926.00
Department of Interior.....	70,627,152.33		
Department of Justice.....	53,900,364.00	\$2,671,163.00	
Department of Labor.....	14,488,397.00		505,803.00
Navy Department.....	343,000,000.00		17,101,593.00

VII. PUBLIC FINANCE AND TAXATION

	Estimates, 1933	Increases	Decreases
Post Office Department:			
Postal Service payable from postal revenues.....	658,724,487.00	12,240,710.00	.....
Postal deficiency payable from Treasury.....	155,000,000.00	.....	40,000,000.00
State Department.....	16,714,071.89	.....	1,792,234.45
Treasury Department.....	293,735,857.00	24,798,440.00	.....
War Department, including Panama Canal.....	423,940,302.00	.....	36,138,348.00
District of Columbia.....	47,331,919.00	.....	1,640,719.00
Total, ordinary, including Postal Service.....	<u>\$3,464,675,623.22</u>	<u>\$165,254,948.00</u>	<u>\$325,143,336.85</u>
Reduction in principal of the public debt:			
Sinking fund.....	\$ 426,489,600.00	14,718,300.00	.....
Other redemptions of the debt.....	70,313,878.00	70,138,878.00	.....
Principal of the public debt.....	<u>\$ 496,803,478.00</u>	<u>\$84,857,178.00</u>	<u>.....</u>
Interest on the public debt.....	<u>640,000,000.00</u>	<u>35,000,000.00</u>	<u>.....</u>
Total, including Post Office Department and Postal Service.....	<u>\$4,601,479,101.22</u>	<u>\$285,122,126.00</u>	<u>\$325,143,336.85</u>
Deduct Postal Service payable from postal revenues.....	658,724,487.00	12,240,710.00	.....
Total, payable from the Treasury.....	<u>\$3,942,754,614.22</u>	<u>\$272,871,416.00</u>	<u>\$325,143,336.85</u>
Annual appropriations.....	<u>\$2,657,011,886.22</u>	<u>.....</u>	<u>\$156,807,584.85</u>
Permanent appropriations.....	<u>1,285,742,728.00</u>	<u>\$104,535,664.00</u>	<u>.....</u>
Total.....	<u>\$3,942,754,614.22</u>	<u>\$104,535,664.00</u>	<u>\$156,807,584.85</u>

BUDGET PROBLEMS AND ITEMS

Factors in the Situation.—In an attempt to balance the budget, President Hoover recognized some of the difficulties. He said: "In framing this Budget, I have proceeded on the basis that the estimates for 1933 should ask for only the minimum amounts which are absolutely essential for the operation of the Government under existing law, after making due allowance for continuing appropriations. The appropriation estimates for 1933 reflect a drastic curtailment of the expenses of Federal activities in all directions where a consideration of the public welfare would permit it. Even with such reductions in the estimates of appropriations, the anticipated receipts under existing law, as stated above will be \$1,417,000,000 short of the amount needed to meet Federal expenditures, including statutory debt retirement.

"In viewing our financial requirements for 1933 the fact should not be overlooked that of the total of \$3,942,000,000 of the estimates of appropriations payable from the Treasury contained in this Budget, \$1,285,000,000 is represented by permanent

definite and indefinite appropriations which by law are automatically made each year without further action by the Congress. Taking into consideration that in addition to this sum of \$1,285,000,000 of permanent definite and indefinite appropriations there are other expenditures of the nature of fixed charges amounting to approximately \$1,000,000,000 for which annual estimates of appropriations must be submitted, there is in reality an area of only about \$1,700,000,000 of the total of \$3,942,000,000 presented in this Budget which is available for consideration in seeking means to curtail our expenditures."

Veterans' Administration.—The budget, of course, is composed of many items. Some are much more important than others. President Hoover enters into a discussion of some of the more important recommendations, a few of which it is worth while to note. There is requested a total of slightly more than \$1,072,000,000 for the Veterans' Administration, compared with a total appropriation for 1932 of approximately \$947,000,000. About \$21,000,000 of each of these amounts per-

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tains to the civil service retirement and disability fund and is not properly chargeable to the annual cost of caring for veterans, which thus becomes \$926,000,000 for 1932 and \$1,051,000,000 for 1933. Comparison of these amounts indicates on its face a net increase of \$125,000,000 for 1933. However, it is now known that additional appropriations will be required for the fiscal year 1932 to the approximate amount of \$260,000,000, of which \$200,000,000 is to meet obligations due to the increase in the loan value of adjusted-service certificates and \$60,000,000 to meet the requirements for military and naval compensation, Army and Navy pensions, and aid to State and Territorial homes for disabled veterans.

Taking these supplemental requirements for 1932 into consideration, the above indicated net increase of \$125,000,000 becomes a net decrease of approximately \$135,000,000. This net decrease, however, is due largely to the adjusted-service certificate fund requirements, which are \$162,000,000 less for 1933. If the adjusted-service certificate fund be excluded from both 1932 and 1933, the estimates for 1933 represent an ultimate net increase over 1932 of \$27,000,000. This amount is the net difference between several items of increase and decrease. The principal item of increase is found in military and naval compensation, which is up \$42,000,000. Resulting from the increase in hospital and domiciliary facilities the cost of administration, medical, hospital, and domiciliary services shows an increase of \$4,460,000, and there is a further increase of \$1,527,000 in the item for hospital and domiciliary facilities. Offsetting these increases is a decrease of \$9,000,000 in Army and Navy pensions, \$4,500,000 in military and naval insurance, and \$7,762,000 in the Government life-insurance fund.

Agriculture.—The estimates for the Department of Agriculture for 1933 carry approximately \$49,800,000 less than the appropriations for 1932. This decrease is accounted for in part by the fact that the 1932 appropriations contained \$22,000,000 for seed loans and agricultural relief for which

no estimate is required for 1933. There is a further reduction of \$2,000,000 in the 1933 estimates from the 1932 appropriations for Federal-aid roads and forest roads and trails, as the regular programs for these works under existing authorizations were advanced to that extent in 1931 and 1932 by the funds made available in the emergency construction appropriations. The balance of the decrease is reflected in a reduction of \$1,750,000 in the estimate for the acquisition of additional forest lands and \$4,800,000 for other activities of the department.

Public Buildings.—The Federal public building program authorized by the act of May 25, 1926, as amended, is being advanced in a marked degree in the furtherance of the movement for the relief of the unemployed. The total authorizations now amount to \$620,000,000 in addition to the amounts authorized for certain old projects specifically brought into the program by the original act and amounting to upwards of \$9,000,000. Of the total amount authorized \$190,000,000 is for land and buildings in the District of Columbia. Moreover, at places where abandoned sites and buildings are sold the proceeds are to be applied against the cost of the new project. The estimated sale value of sites and buildings to be so replaced amounts to approximately \$69,000,000 and about \$6,700,000 has been realized from such sales up to the present time.

In accordance with the provisions of the legislation above referred to, specific authorizations have been made for 817 projects at limits of cost aggregating \$466,800,000. Under authority of these authorizations, obligations have been incurred, up to June 30, 1931, amounting to \$175,560,000, of which \$73,633,000 were incurred in the fiscal year 1931. It is expected that obligations to be incurred in the fiscal year 1932 will amount to \$155,000,000, and if this is brought about there will be a balance of over \$136,000,000 available for obligations in the fiscal year 1933. It is apparent, therefore, that specific authorizations for individual projects already made are sufficient to carry

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the construction program through the fiscal year 1933.

National Defense.—The estimates for national defense under the War and Navy Departments for 1933 aggregate \$644,650,000 as compared with the appropriations for 1932 for this purpose totaling \$695,691,000, a decrease of \$51,041,000. These amounts exclude all items of a non-military nature. The net decrease for the War Department amounts to \$33,952,000. This is mainly due to the fact that owing to lowered commodity costs there will be carried forward into 1933 large stocks of subsistence, clothing, and other supplies and to a decrease in the present estimates from the appropriations for 1932 of funds to carry forward the Army building program. The postponement of other projects where practicable without serious detriment to the maintenance, operation, and training of the Army has also been a material factor in effecting reductions in the estimates for 1933. Provision is made in these estimates for average active strengths of 12,000 commissioned officers, 924 warrant officers, and 118,750 enlisted men of the Regular Army, and 6,500 enlisted men of the Philippine Scouts; for an actual average strength of 185,000 officers and men of the National Guard; for the training of 20,772 members of the Organized Reserves for varying periods; for the enrollment and instruction of 127,565 students in Reserve Officers' Training Corps units in schools and colleges and the training of 7,200 of this number in 42 camps; and for 30 days' attendance at citizens' military camps of 37,500 trainees. With one or two very minor exceptions these strengths are the same as those provided for 1932.

For the Navy Department the items contained in the estimates for purposes of national defense for 1933 amount to \$342,606,000. The comparable amount appropriated for 1932 is \$359,694,000. This indicates a decrease under 1932 of \$17,088,000. This decrease includes \$15,000,000 for ordinary maintenance and operating expenses of the fleet and the shore establishment \$8,000,000 for shore pro-

jects, and \$7,150,000 for construction of new ships. It provides an increase of \$15,000,000 for modernization of battleships. The items for ordinary maintenance and operation of the fleet and shore establishments provide for maintaining during 1933 an average of 79,700 enlisted men of the Navy, the same as provided for 1932, and an average of 15,343 enlisted men of the Marine Corps as against 17,500 men provided for 1932. Under these estimates no fighting vessels will be decommissioned and no navy yards or training stations will be closed. Other decreases in requirements are due in part to the continuation of the so-called "rotation plan" for the employment of vessels, recently adopted by the Navy Department, which lends itself to both economy and efficiency in fleet operations, and in part to reduced costs of supplies and materials. The estimates of \$31,400,000 for the construction of new vessels, compared with the appropriation of \$38,550,000 for 1932, indicates a decrease of \$7,150,000. This, however, is a facial decrease only. When the cash balances to be carried forward from prior years, and the amount to be made available by transfer from the naval supply account fund, are taken into consideration, the total that will be available for ship construction in 1933 is estimated at \$57,000,000. The availability for 1933 exceeds in amount the expenditures for ship construction in any one of the last 10 years. The expenditures in 1923 were \$46,682,000; 1924, \$41,697,000; 1925, \$34,022,000; 1926, \$25,250,000; 1927, \$27,430,000; 1928, \$36,935,000; 1929, \$46,760,000; 1930, \$49,872,000; 1931, \$37,944,000, and for 1932 are estimated at \$53,000,000. The amount available for 1933 will provide for normal progress in construction of every vessel now authorized by law and permitted under treaty restrictions except six destroyers the laying down of which has been postponed and, in addition, for beginning construction of one more 8-inch-gun cruiser in January, 1933, which is the earliest date permitted under the terms of the London treaty.

Conclusion of President Hoover.—President Hoover closed his budgetary

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message with the following significant paragraphs: "We have recently closed one fiscal year and are now advanced into another year where the depression in business has resulted, on the one hand, in a heavy falling off in receipts and, on the other hand, in large Federal expenditures to provide work to assist in the relief of unemployment.

"The welfare of the country demands that the financial integrity of the Federal Government be maintained. This is a necessary factor in the rebuilding of a sound national prosperity. This Budget, with its recommended reductions in appropriations and increases in revenues, presents a definite program to this end involving three steps: first, a material reduction in the anticipated deficit for the current fiscal year; second, a relation between receipts and expenditures for the fiscal year 1933 which will avoid a further increase in the public debt during that year; and third, a balanced Budget for 1934.

"To carry out this program it is important to emphasize the fact that we are now in a period where Federal finances will not permit of the assumption of any obligations which will enlarge the expenditures to be met from the ordinary receipts of the Government.

"I am convinced that the Congress realizes this situation and will give it full consideration in passing upon matters which may contemplate any such additions to our spending program. To those individuals or groups who normally would importune the Congress to enact measures in which they are interested, I wish to say that the most patriotic duty which they can perform at this time is to themselves refrain and to discourage others from seeking any increase in the drain upon public finances."

TAX LEGISLATION

Because of the deficit in revenues for the preceding year and the anticipated deficit for the current year, President Hoover made the following recommendation in regard to tax legislation:

"We are now face to face with a situation where for a time the current

revenues of the Government under our existing laws have fallen below the amounts required to meet the absolutely necessary expenses. This brings the question directly before us of the course that shall be pursued. As already stated the deficit for the fiscal year 1931 is \$902,000,000 and the estimated deficits for 1932, \$2,123,000,000, and 1933, \$1,417,000,000, or a total of \$4,442,000,000, which, after deducting statutory debt redemptions and increased cash in the Treasury, show for these three fiscal years a total probable net increase in the national debt of \$3,247,000,000. Rightly or wrongly our tax system is very largely based upon business profits and in consequence is subject to great variables.

"We can not maintain public confidence nor stability of the Federal Government without undertaking some temporary tax increases. It is obviously impossible to impose a degree of taxation which will balance the Budget for the current fiscal year. We should endeavor by increase of taxes and rigid curtailment of expenditures to balance the Budget for the next fiscal year except to the extent of the amount required for statutory debt retirements. We should assure its balance, including statutory debt retirements, for the fiscal year following.

"I recommend that Congress provide for an increase in taxation for a definite limited period and upon the general plan of taxation which existed under the revenue act of 1924 with such changes as may be appropriate in the light of altered conditions. The Secretary of the Treasury has prepared recommendations along these lines which he will present at the proper time. It is proposed that this increase shall be definitely terminated in two years from next July. This plan, it is estimated, will realize \$920,000,000 next year and thus meet the above conditions of balancing the Budget for the fiscal year 1933 except for the statutory debt retirement. It would balance the Budget including debt retirement in the fiscal year beginning July 1, 1933. It would provide about \$390,000,000 for the current year, leaving us with the neces-

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sity of borrowing an amount which will represent a net increase in the public debt by about \$1,320,000,000.

"The plan of approximately reenacting the revenue act of 1924 has the great advantage that the Government is equipped by experience with similar legislation for its systematic and economical collection. The public has paid such taxes in the past and has found them not intolerable and has found that they do not prevent increased prosperity. By providing a definite date for termination of the temporary increase it will allow taxpayers to look forward to definite relief."

After extended hearings before the Committee on Ways and Means, the revenue laws were modified by the House of Representatives. Many

amendments were made in the Senate and the legislation finally adopted was the result of a conference.

REVENUE LEGISLATION

Present indications are that the budget will be far from balanced at the end of the year. Most of the taxes are bringing much less than anticipated. The receipts for July and August were considerably smaller than for the corresponding months of last year. Total internal revenue collections were \$12,483,000, or 16.8 per cent less than for July, 1931. Income tax collections for August were \$8,000,000 or 34.2 per cent less than for August, 1931. The result has been increased borrowing operations. The Federal indebtedness is now more than \$20,000,000,000, an increase of more than \$4,000,000,000 since 1930.

THE NATIONAL BUDGET

BY A. E. BUCK

INSTITUTE OF PUBLIC ADMINISTRATION

THE PRESIDENT'S BUDGET FOR 1933

Serious Financial Situation.—President Hoover's budget for 1933, covering the fiscal year begun July 1, 1932, tried to explain at some length why an estimated surplus of \$30,600,000 in the previous year's budget had been turned into an estimated deficit (as of Dec. 7, 1931) of \$2,122,000,000. By the end of the fiscal year, June 30, 1932, this estimated deficit had actually become \$2,885,000,000, according to the Treasury report. The President explained that the receipts for that year, as originally estimated at \$3,956,000,000, had fallen off tremendously because of the severity of the depression. Actually they reached the low figure of \$2,121,000,000 by the end of June, 1932, which was considerably below the point they were estimated to go seven months before. At the same time, expenditures for 1932 bounded up to \$5,006,000,000, a figure that was \$355,000,000 above the President's estimates the previous De-

cember. Thus there had developed a situation in the national finances, which could not be regarded in any other light than being one of serious concern.

Budget Proposals.—President Hoover prefaced his budget proposals for 1933 by saying, "We are now face to face with a situation where for a time the current revenues of the Government under our existing laws have fallen below the amounts required to meet the absolutely necessary expenses." He saw an increase in the national debt of \$3,247,000,000 because of borrowings to meet the accumulating deficits. He foresaw that "some temporary tax increases" would be necessary to maintain financial stability. He thought it was obvious that enough taxes could not be imposed to balance the budget for 1933, but that this might be done during the following fiscal year. He suggested that the tax increases be made on the basis of the revenue act of 1924; in fact, he urged that act as it

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stood since government officials had already had experience with it and could, therefore, make the collections more systematically and economically under it. He thought the public would not object to a scale of taxes which had already been in effect.

In making his recommendations for expenditures, President Hoover said that he had proceeded on the basis "that the estimates for 1933 should ask for only the minimum amounts which are absolutely essential for the operation of the Government under existing law, after making due allowance for continuing appropriations." He asserted that his estimates presented a drastic curtailment of Federal activities in all directions in so far as public welfare would permit. His total estimates stood at \$3,942,000,000 in round figures, which after taking into account numerous additions and deductions, was only \$52,000,000 less than the appropriations for the current year, or about $1\frac{1}{2}$ per cent. To his total estimates should be added \$658,000,000, which were receipts from postal revenues not included, thus making a grand total of \$4,601,000,000 requested in the budget as it went to Congress. In financing this budget, the President anticipated that there would be a deficit of \$1,416,000,000, which he would attempt to adjust when he prepared the budget for 1934.

After President Hoover's budget for 1933 was sent to Congress, there was considerable paring down of his estimates for some operating departments in spite of the already "drastic curtailment." In the end his estimates totaled \$4,643,945,196.90, as tabulated in the *Congressional Record* for July 16, 1932, pp. 16123-4. This total included \$322,224,000 for emergency relief and construction, for which no formal budget estimate had been submitted but which had received tentative approval in one of the President's special messages. It also included \$500,000,000 as capital stock for the Reconstruction Finance Corporation, but it apparently overlooked about an equal amount for the sinking funds.

CONGRESSIONAL ACTION ON THE BUDGET

Obstacles in Congress.—Beset by demands for unemployment relief and emergencies of one kind or another growing out of the depression, Congress started the task of trying to balance the budget as presented to it by the President. This process required, among other things, that a deficit of more than \$2,000,000,000 must be met. The Senate and the House were not in party agreement, and, as subsequent events disclosed, neither had very strong leadership. As a result, Congress muddled its way through a long session working against great odds in trying to meet a most complicated situation.

The President and Congress.—During the session President Hoover transmitted more than 60 messages to Congress, in about a third of which he urged the importance of Federal retrenchment and the necessity of balancing the budget. He sometimes threatened to veto measures, and actually did veto several which he regarded as not being in the public interest. Many conferences were held at which members of Congress talked with administrative officials. The President had decided that appropriations must be cut, but neither Congress nor the administrative heads had any definite views on the problem. Indeed, there were accusations that some Cabinet members tried to dissuade the Appropriations Committee from cutting their appropriation requests.

By the end of May the President came to the conclusion that his special messages had not been sufficient, so he addressed the Senate in person at noon on May 31. He told this body that "the long-continued delays in the passage of legislation providing for such reduction in expenses and such addition to revenues as would balance the budget, together with proposals of projects which would greatly increase governmental expenditures, have given rise to doubt and anxiety as to the ability of our Government to meet its responsibilities." He said that three legislative provisions should be made at once:

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(1) drastic reduction of expenditures, (2) passage of adequate revenue legislation to balance the budget, and (3) passage of adequate relief legislation to assure the country against distress and to aid unemployment pending the next session of Congress. He concluded with this significant statement: "In your hands at this moment is the answer to the question whether democracy has the capacity to act speedily enough to save itself in emergency." This address did get action on the part of Senate, which was already on the point of voting on the revenue bill, but there were some unfortunate repercussions from it.

Appropriation Bills—Congressional action on the general appropriation bills dragged along throughout the session. The House began passing these bills in January and continued doing so until after the middle of May. It passed the last regular appropriation bill, the one for the War Department, on May 19. It acted on the second deficiency bill on June 3. These bills went to the Senate where action was deferred upon them for one reason or another, the result being that three of the regular appropriation bills had not been passed when the fiscal year opened on July 1. These were the Treasury and Post Office bill, approved July 5; the Agriculture bill, approved July 7; and the War Department bill, finally agreed to by both houses on July 13. It therefore became necessary for Congress, before it adjourned on July 16, to pass a joint resolution (H. J. R. 474), making the appropriations contained in these bills available from the first day of the fiscal year, or July 1, 1932.

Emergency Measures.—A number of emergency measures were passed by Congress, the most important one perhaps being the act creating the Reconstruction Finance Corporation with a capital stock of \$2,000,000,000, \$500,000,000 of which was subscribed by the Treasury. President Hoover approved the act Jan. 22, and the corporation was immediately set up with Charles G. Dawes at its head. The purpose of this organization, the President said, was "to stop deflation in agriculture and industry, and thus

to increase employment by the restoration of men to their normal jobs." A report of the Corporation's activities for the first seven months of its existence states that it has made disbursements of \$1,182,000,000 in round figures to aid the financial stringency in agriculture, commerce and industry. This amount is exclusive of \$35,000,000 in relief loans to states, and \$53,000,000 of loans for financing the construction of self-liquidating projects. Its principal borrowers are banks and trust companies and railroads. More than 500,000 farmers are reported to have been aided through an advance of \$75,000,000 made by the corporation to the Secretary of Agriculture.

Other important relief measures were an act establishing a system of home loan banks, with a capital of \$125,000,000 initially subscribed by the Reconstruction Finance Corporation; an act expanding the Federal Farm Loan System by providing \$125,000,000 new capital; an act setting up a fund of \$2,100,000,000 for relief of the destitute and for construction of public works, \$1,800,000,000 of this amount being used to expand the capital of the Reconstruction Finance Corporation; and several acts providing for the expansion of credit facilities, mostly through the Federal Reserve System. These acts were the result of a long struggle in Congress over relief legislation. A number of proposals were considered by both houses. Some were passed and vetoed by the President.

The Economy Bill.—Soon after Congress assembled, President Hoover proposed administrative consolidation and the elimination of useless bureaus in the interest of economy. But Congress made no move in this direction, except to create an investigating committee to cooperate with the standing Committee on Appropriations of the House. Early in April the President urged Congress in a special message to establish a board consisting of representatives of both houses and the administrative departments to prepare a plan for expenditure reductions amounting to \$200,000,000. Several members in both houses immediately

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attacked the President's proposal, expressing doubt as to what might be accomplished by the suggested board and asking the President for a definite list of proposals. The President then submitted some recommendations, mainly with reference to salary adjustments and a five-day week. An economy measure, embodying most of these recommendations, was framed and presented in the House. It carried a reduction of expenditures estimated at \$160,000,000. A battle of words then ensued in the House. When it had subsided, the measure was found to be so amended that hardly \$40,000,000 of the estimated cuts remained, which was made up mainly of a percentage reduction in salaries. The measure was then sent to the Senate, where a special committee sought to revive the original economy program of the President. A revision was made, which was essentially a new plan. This was finally adopted by both houses, and approved by the President on June 30. It was at once referred to as the "Economy Act."

This act is estimated to bring about reductions in the operating expenditures of the government amounting to at least \$150,000,000 during the fiscal year ending June 30, 1933. It contains provisions for a five-day week, graduated percentage reductions in salaries above \$1,000, suspension of promotions and filling of vacancies, reduction of travel allowances, adjustment of overtime compensation, limitation on retirement pay, reduced annual leave with pay. It provides for the reorganization of the Shipping Board, for limitations on printing and binding, for increases in certain fees, and for restriction on construction and rental of buildings. Perhaps the most important of its provisions, those which are likely to be of a lasting character, relate to governmental reorganization. In order to reduce expenditures and increase efficiency in government, it is declared to be the policy of Congress: "(a) to group, coordinate, and consolidate executive and administrative agencies of the government, as nearly as may be, according to major purpose; (b) to reduce the number of such agencies

by consolidating those having similar functions under a single head; (c) to eliminate overlapping and duplication of effort; and (d) to segregate regulatory agencies and functions from those of an administrative and executive character." The President is given the power to carry out this policy. It is to be done by executive order to become effective in sixty days after the opening of the next session of Congress unless expressly disapproved, but Congress may by earlier approval speed up the time. A few minor changes in organization are specified, which are to be made before Congress meets in December, 1932.

The Tax Bill.—The tax bill held the attention of Congress longer than any other measure. In January the Treasury Department submitted a tax program to Congress which was along the lines of the President's recommendations in his budget message. The House Ways and Means Committee held numerous hearings and then came forward with a new plan in which a manufacturers' sales tax was the main element. When this plan was considered in the House, it was practically thrown out. A new proposal resulted which went back to higher income taxes with added internal revenue taxes. The Senate finally accepted this proposal, but with increased income tax rates and an import tax on oil, copper, coal, and lumber. The bill, as finally approved on June 6, was estimated to yield the following amounts from the various new or increased taxes:

Income taxes.....	\$299,000,000
Increased postal rates.....	160,000,000
New tariffs.....	6,500,000
Stamp taxes.....	45,500,000
Gift tax.....	5,000,000
Sales taxes.....	450,500,000
Admission taxes.....	42,000,000
Tax on checks.....	78,000,000
Miscellaneous.....	32,000,000
Total.....	\$1,118,500,000

These taxes, assuming that they all materialized, still fell short of balancing the budget by at least \$350,000,000. Later events indicated that this figure might exceed a billion dollars. *The New York Times*, discussing means of bridging such a huge gap, suggested editorially on June 6,

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two large economies: one the liquidation of the Federal Farm Board estimated to net \$250,000,000, and the other the readjustment of methods of administering veterans' relief along the lines recommended by the National Economy Committee, which would produce an estimated saving of \$450,000,000.

SUMMARY OF APPROPRIATIONS

In summarizing the appropriations made during the session, both Representative Byrns and Senator Jones, chairman of the appropriation committees of their respective houses, said they were satisfied that Congress had made a good record looking toward economy and a balanced budget. The following figures are based upon those presented by these congressmen and by Representative Wood in the *Congressional Record* for July 16, and 25, 1932. It is estimated that the total of \$5,745,000,000, in round figures, will be reduced by postal revenues of \$725,000,000, and savings on account of the "Economy Act" of \$150,000,000, making a total reduction of \$875,000,000. This leaves a net grand total of \$4,870,000,000, which does not include any sum for private relief acts, or for 40,000,000 bushels of wheat and 1,000,000 bales of cotton distributed through relief agencies by the Federal Farm Board from its market stabilization stores.

SUMMARY OF APPROPRIATIONS BY SEVENTY-SECOND CONGRESS, FIRST SESSION

Title of Act	Appropriations
<i>Regular Annual Acts</i>	
Agriculture.....	\$175,671,665.00
District of Columbia.....	41,245,622.00
Executive office and independent offices.....	982,446,041.00
Interior.....	45,533,672.33
Legislative establishment..	18,673,991.00
Navy.....	317,583,591.00
State, Justice, Commerce, and Labor.....	\$112,291,970.89
State.....	\$13,663,792.89
Justice.....	45,996,000.00
Commerce.....	39,711,408.00
Labor.....	12,920,770.00
Treasury and Post Office..	\$1,056,247,833.00
Treasury.....	\$250,308,158.00
Post Office.....	805,939,675.00

War.....	\$396,078,513.00
Military.....	\$289,500,024.00
Non-military.....	106,578,489.00
Total, regular annual.	\$3,145,772,899.22

<i>Deficiency Appropriation Acts</i>	
First deficiency, 1932....	\$126,250,333.89
Second deficiency, 1932...	22,682,369.61

Total, deficiency appropriation acts.....	\$148,932,703.50
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<i>Miscellaneous Acts</i>	
Veterans' Administration, adjusted-certificate fund, etc.....	\$203,925,000.00
Pensions.....	12,750,000.00
Emergency relief and construction act of 1932...	322,224,000.00
Reconstruction Finance Corporation.....	500,000,000.00
Capital stock of Federal land banks.....	125,000,000.00
Miscellaneous.....	1,046,500.00

Total, miscellaneous acts	\$1,164,945,500.00
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Total, regular annual, deficiency, and miscellaneous acts.....	\$4,459,651,102.72
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<i>Permanent and Indefinites</i>	
Interest on public debt...	\$640,000,000.00
Sinking fund and other debt retirement funds...	496,803,478.00
Ordinary permanents and indefinites.....	149,104,250.00

Total, permanents and indefinites.....	\$1,285,907,728.00
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Grand total.....	\$5,745,558,830.72
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EXECUTION OF THE BUDGET

Deficit.—During the execution of the 1932 budget, starting on July 1, 1931, and ending on June 30, 1932, the national government piled up the greatest peace-time deficit in its history. As we pointed out in the beginning, this deficit amounted to \$2,885,000,000. Revenues for the year fell off to \$2,121,000,000, which was \$1,196,000,000 under the revenues for 1931. At the same time the expenditures rose to \$5,006,000,000, or an increase over the previous year of \$786,000,000. In order to meet this situation, the Treasury borrowed during the fiscal year ended June 30, 1932, \$2,686,000,000, according to Secretary Mills. This increased the public debt in one year from \$16,801,000,000 to \$19,487,000,000, and ran up the short-term debt to over \$6,000,000,000. "In considering the record of the

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fiscal year just closed," said Secretary Mills, "and more particularly the heavy deficits of the last two years, it must not be forgotten that, while these combined deficits aggregate \$3,788,000,000, the aggregate surplus from the preceding years applied to the reduction of our national debt was \$3,460,000,000." After having thus explained the situation to his own satisfaction, he went on to say that "the considerable reduction in expenditures and the enactment of so sweeping a tax measure as the revenue act of 1932 constitute real achievements in putting our financial house in order." This statement, in view of what has happened since, is nothing less than sheer optimism. The first four months of the fiscal year, ending October 31, 1932, showed a deficit of \$629,000,000 between income and outgo. Assuming that revenues pick up during the remainder of the year, there will still be a huge deficit at the end. It also appears that the new and revised taxes from which the Treasury had expected to receive over a billion and one hundred million dollars will produce only about \$700,000,000 at the present rate.

Inaccurate Forecasting.— Apparently the forecasting of the financial position of the government during this period by both the Treasury and the Budget Bureau has been far from what later proved to be the actual condition. This means poor budgeting, since accurate forecasting is the essence of good financial planning. When Secretary Mellon appeared before the Ways and Means Committee Jan. 14, 1932, he cited the same figures that President Hoover had used in his budget submitted to Congress six weeks before that date. Half of the fiscal year had been completed on December 31, and the expenditures were known to exceed the revenues by \$1,385,000,000. At this rate it was easy to see that the deficit for the full year would be around \$2,770,000,000, or more than \$600,000,000 in excess of the figure estimated by the President. Yet Secretary Mellon did not

revise that figure. Later Secretary Mills, who succeeded Mr. Mellon, did submit a revised estimate; in fact, he prepared two or three such estimates before the fiscal year had ended. But these estimates were usually too high, and each successive revision was a matter of paring them down.

Budget Bureau's Work.— The Budget Bureau continued to emphasize mainly the preparation of the estimates for the President's budget. It regarded this work as its main task, even when conditions clearly indicated that it might be useful in restricting expenditures. The expenditure of appropriations is followed by the Budget Bureau, as in the past, through a scheme of departmental reporting on quarterly allocations. These reports serve mainly as a basis for knowing what the current requirements indicate with respect to future estimates. This scheme might well be developed into an effective system of budgetary control, which would reflect currently the wishes of the President on departmental retrenchment and would be the means of maintaining a balanced budget throughout the fiscal year. As revenues declined during the fiscal year, expenditures might be curtailed by this system so as to bring them more nearly together and hence reduce the amount of temporary borrowing needed to finance the government. A system of this kind would be a distinct help in attaining the objects of the "Economy Act," already noted.

Administrative Reorganization.— In line with the policy of Congress as enunciated in the "Economy Act," President Hoover has announced that he will submit a complete plan of administrative reorganization to Congress when it meets in December. The Director of the Budget has been made responsible for drafting the necessary executive orders. The President has already reorganized the Shipping Board as provided in the act, but with very little saving in personnel except in the elimination of board members.

VII. PUBLIC FINANCE AND TAXATION

PUBLIC DEBT OF THE UNITED STATES

BY FRANCIS H. SISSON

VICE-PRESIDENT, GUARANTY TRUST COMPANY OF NEW YORK

INCREASE IN THE PUBLIC DEBT

The United States Government closed its fiscal year June 30, 1932 with the largest peace-time deficit in the history of the country and with an increase in the public debt unparalleled except in the war years of 1918 and 1919. At the end of the fiscal year, the gross debt amounted to \$19,487,009,766, as against \$16,801,485,143 a year earlier, showing an increase of \$2,685,524,623. This was the second successive annual increase in the debt following an eleven-year period of uninterrupted reduction. At the end of the fiscal year 1919, the debt stood practically at its peak figure, amounting to \$25,482,034,419. Retirements during the next eleven years brought the total in 1930 down to \$16,185,308,299, or only 63.5 per cent. of the peak figure. The increases in 1931 and 1932 left the amount of the debt at 76.5 per cent. of the 1919 total and at the highest level reported since 1926. In other words, the increase in the debt during the last two fiscal years practically canceled the reduction achieved during the preceding four years and wiped out more than one-third of the total reduction for the first eleven years after the war.

THE FEDERAL DEFICIT

Revenue Receipts.—The abrupt transition from surplus to deficit financing came about as the result of several factors, most of which were due, directly or indirectly, to the general economic depression. The greatest single cause of the deficit was the violent drop in receipts, which was directly traceable to the effects of depression on incomes, prices, and the volume of business. Total receipts in the fiscal year 1932 amounted to only \$2,005,725,437, as against \$3,189,638,632 in 1931 and \$4,177,941,702 in 1930. Internal revenue receipts were \$1,557,729,042, or \$870,-

499,711 less than in 1931. Income taxes were \$1,056,756,697, or \$803,283,799 below the 1931 figure, and were divided into corporation income taxes of \$629,566,115, showing a drop of \$396,826,583, and individual income taxes of \$427,190,581, showing a decrease of \$406,457,216. Estate taxes were \$656,013 below the 1931 total; levies on distilled spirits were \$1,728,101 below; tobacco taxes \$45,697,884 below; stamp, admission, and other special taxes \$18,042,910 below, and miscellaneous taxes \$1,091,002 below. Customs receipts, according to the preliminary statement, amounted to \$327,752,391, as compared with \$378,340,663 in 1931.

Expenditures.—The increase in expenditures, which was somewhat smaller than the decrease in receipts, was also traceable, in large measure, to conditions brought about by the depression. Expenditures reached a total of \$4,885,909,686, as against \$4,091,597,712 in 1931 and \$3,994,152,487 in 1930. This increase represented a continuation of the upward trend in expenditures which had been visible since 1927, when expenditures reached their post-war low at \$3,493,584,519. The increase was, however, greatly accelerated by the extraordinary demands of the depression era, as is indicated by the increase of nearly \$800,000,000 between 1931 and 1932. Of this increase, \$500,000,000 consisted of appropriations to the Reconstruction Finance Corporation and \$125,000,000 of subscriptions to stock of Federal Land banks. While these items were partly offset by decreases in other appropriations, the gain in the total was swelled by an increase in general expenditures of more than \$200,000,000, spread over a large number of items.

Deficit Comparisons.—The result was a budgetary deficit for the fiscal year amounting to \$2,880,184,249.

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This compares with a deficit of \$901,959,080 for the preceding year, when the effects of the depression on receipts and expenditures were already evident but had not assumed such proportions as they did during the later period. Prior to 1931, there had been an unbroken series of annual surpluses extending back to 1919, when the war-time scale of expenditures was still in effect.

DEBIT ANALYSIS

An examination of the debit at the end of the last fiscal year reveals a total of \$14,249,658,040 in bonds, \$1,465,253,600 in Treasury notes, \$2,830,729,900 in certificates of indebtedness, and \$615,632,000 in Treasury bills, giving a total interest-bearing debt of \$19,161,273,540. In addition, there was a matured debt on which interest had ceased amounting to \$60,079,385 and a debt bearing no interest of \$265,649,519. The bond item was divided into three main groups: pre-war bonds amounting to \$789,567,390, Liberty bonds of \$8,201,314,550, and Treasury bonds of \$5,258,776,100. In the first group, the principal item consisted of \$599,724,050 in 2 per cent Consols of 1930. The second group consisted of \$1,933,214,100 in First Liberty loan bonds of 1932-47 and \$6,268,100,450 in 4¼ per cent Fourth Liberty loan bonds of 1933-38. The Treasury bond group contained numerous important items, the largest being \$1,036,834,500 in 4 per cent bonds of 1944-54.

MEASURES TO MEET THE TREASURY CRISIS

The President's Suggestions.—It was clearly recognized at the beginning of the fiscal year that adverse economic conditions throughout the world had profoundly altered the position of the Federal Treasury, and steps were taken to correct the situation, although most of the measures adopted were aimed more directly at achieving a balanced budget for the fiscal year 1933 than at reducing the deficit for 1932. President Hoover's original budget estimate for the fiscal year 1932, made in December,

1930, forecast a surplus of \$31,000,000. During the ensuing year, it became evident that Treasury operations had been much more severely affected by the depression than had been expected, and the President's budget message in December, 1931, indicated a deficit of \$2,122,683,685 for 1932 and one of \$1,416,949,448 for 1933 unless action was taken by Congress to provide additional revenues. In order to balance the budget, the President recommended the re-enactment for a two-year period of the general provisions of the revenue act of 1924. Admitting the impossibility of meeting in full the deficit in the remaining months of the current fiscal year, the President expressed the conviction that his tax proposals would eliminate it in 1933, except for statutory public-debt retirements, and wipe the slate clean in 1934.

Retrenchment Appeal.—In January, 1932, the President issued an appeal for governmental retrenchment, declaring that "we cannot squander ourselves into prosperity." Calling on State and local governments to aid in a general move for economy, the President said that he did not fear a flood of Federal expenditures, despite measures calling for appropriations of \$40,000,000,000 in the next five years, introduced in Congress. Such bills, he said, represented a spirit of spending "which must be abandoned," but he added that there was little chance of their passage and urged that the "organizations and sectional interests" which sponsored them cease their pressure on Congress. He praised Congress for its non-partisan efforts to reduce national expenditures. "The public statements of Republican and Democratic leaders of the Senate and the House," he said, "show a real non-partisan determination in cooperation with the administration to assure the country of the balancing of the Federal expenditures and income for the fiscal year beginning July 1."

The Treasury Program.—A few days later, the Secretary and Under-Secretary of the Treasury described

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their plans for balancing the budget by economies and increased taxation before the Ways and Means Committee of the House Representatives. The Government's credit must not be impaired, the officials said, with a warning against borrowing. Mr. Mellon outlined a two-year "emergency" program whereby the Treasury hoped to raise additional revenue of \$920,000,000, or enough to balance the books for the fiscal year 1933, and \$390,000,000 additional during the current fiscal year. Higher income-tax rates with lower exemptions, increased rates on tobacco, a slight increase in corporation tax levies, taxes on automobiles, radios, checks and drafts, telephone, telegraph, cable and radio messages, and an increase in estate taxes were recommended, in keeping with the plans of the Administration as announced at the opening of Congress. Secretary Mellon took the position, as did Mr. Mills, that the surest and greatest step the Government could take toward reviving prosperity was to put its own house in order and begin living within its income. Mr. Mills pleaded with the House committee to take a "courageous step" and increase taxes. He asked that body to say to the country, through a tax increase bill, that the "cowardly policy of borrowing has got to stop." To continue borrowing on any such scale as would be required, without a tax increase, he said, "is to seriously threaten the credit of the United States Government, create a loss of confidence in government securities, a loss of confidence that would immediately be reflected in all other securities."

THE BUDGET IN CONGRESS

Difficulties and Dissensions.—Under the pressure of these and other statements by Federal officials, Congress set about the task of budget balancing in an apparently constructive and nonpartisan spirit. Before the session ended, however, the process developed into one of the longest and bitterest legislative struggles in the history of the country. In the course of that struggle, four different

plans for a new revenue bill were submitted to Congress before one was found on which agreement could be reached. Sectional and group interests cut across proposals for retrenchment in expenditures. Friends of the Administration denounced Congress as incompetent. Congress accused the President of lack of leadership. The President himself wrote 28 messages and statements on the question of a balanced budget. The long period of uncertainty was regarded as one of the causes of Europe's lack of confidence in the stability of the American financial situation, as reflected in the outward flow of several hundred million dollars in gold during the first half of 1932.

Proposed Taxes.—The features of the proposed revenue law that aroused the bitterest controversy were the general manufacturers' sales tax and the incorporation of special import taxes on certain important commodities. The sales tax proposal was finally defeated in the House of Representatives after one of the stormiest and most disorderly scenes in the history of the chamber. The special import taxes on copper, petroleum, coal, and lumber were included in the bill as finally enacted, despite strenuous opposition and charges of sectionalism and "log-rolling."

PROVISIONS OF THE NEW REVENUE LAW

Income Taxes.—The revenue law, which was signed by the President on June 6, increased both normal and surtax rates in individual incomes. The personal exemption for married persons was reduced from \$3,500 to \$2,500 and for single persons from \$1,500 to \$1,000. The normal rates of 1½, 3, and 5 per cent. were increased to 4 per cent. on the first \$4,000 above the exemption and 8 per cent. on the remainder. Surtax rates began at \$6,000 instead of \$10,000 and ranged from 1 per cent. on the first \$4,000 to a maximum of 55 per cent. on amounts in excess of \$1,000,000. The earned income credit was eliminated. The rate for cor-

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porations was raised from 12 to 13½ per cent. on separate returns and to 14½ per cent. on consolidated returns, and the specific credit formerly allowed corporations with incomes of less than \$25,000 was repealed. Various changes were prescribed in the method of computing net income, almost all of which were in the direction of less liberality to the taxpayer.

Estate Tax.—A tax on estates, in addition to that provided by the 1926 revenue act, was imposed at rates beginning at 1 per cent. on net estates of \$10,000 or less and running up to 45 per cent on net estates in excess of \$10,000,000. The exemption allowed for the purpose of the additional estate tax was \$50,000, and no credit for state death taxes was allowed in respect of such additional tax. Gifts by individuals were made subject to tax at rates ranging from ¼ of 1 per cent. on net gifts not in excess of \$10,000 to 33½ per cent on gifts in excess of \$10,000,000.

Excise taxes, to be paid by manufacturers, producers, or importers (except that on electrical energy, which is to be levied on the person paying for same) were imposed on lubricating oils (not to apply on imports), brewer's wort, liquid malt (except when sold to bakers and producers of food and medicinal products), grape concentrates, evaporated grape juice and grape syrup (other than fountain syrups) containing more than 35 per cent. sugar by weight, toilet preparations, furs, jewelry (with certain exceptions), automobiles, trucks, motorcycles, accessories, tires and tubes, gasoline, soft drinks, electrical energy, radio receiving sets, phonographs and records, mechanical refrigerators, sporting goods, firearms, shells and cartridges, cameras, matches, candy, and chewing gum. Excise taxes were imposed on imports of crude petroleum and derivatives, gasoline and other motor fuels, lubricating oils, paraffin and petroleum wax, coal and coke, lumber, and copper-bearing ores and concentrates.

Special taxes were imposed on telephone, telegraph, cable, and radio communications; bank checks; leases of safe-deposit boxes; transportation of oil and crude petroleum by pipe line; and boats not used exclusively for trade, fishing, or national defense. The admission tax was made to apply on all charges above 40 cents. The law increased the original-issue tax on stocks and bonds, the transfer tax on capital stock, the tax on sales of produce for future delivery, and the rates of postage on first-class and second-class matter, and imposed a tax on the transfer or sale of bonds of indebtedness and on conveyances of real estate.

OTHER FINANCIAL LEGISLATION

Omnibus Bill.—The revenue law was supplemented by a measure designed to effect certain economies in the Federal Government. On April 15, the President submitted to the Economy Committee of the House of Representatives a draft of an omnibus bill intended to reduce Government expenditures by more than \$200,000,000 a year. This bill was subjected to one amendment after another until it was finally passed in a form which, it was estimated, provided for savings of only about \$42,000,000, or about one-fifth of the amount originally contemplated.

Reconstruction Finance Corporation.—Offsetting the revenue and economy measures were several pieces of legislation designed to combat the effects of the economic depression by the expenditure or the lending of public money. The most important of these were the Reconstruction Finance Corporation Act and the unemployment relief act. The Reconstruction Finance Corporation was created during the early part of 1932. A sum of \$500,000,000 was appropriated by the Government; and the corporation was empowered to issue debentures up to three times the amount of this contribution, the debentures to be fully guaranteed as to interest and principal by the Government. The Reconstruction Finance Corporation was

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organized when it became apparent that the National Credit Corporation, previously formed by the President with a capital of \$500,000,000, contributed by private banks, was not sufficiently broad in scope to perform the functions for which it was intended. The Reconstruction Finance Corporation was directed to turn over \$50,000,000 of its capital to the Secretary of Agriculture for the purpose of making loans to farmers for productive purposes. The remainder of the funds was to be used in loans to banking institutions, building and loan associations, insurance companies, mortgage loan companies, credit unions, Federal land banks, intermediate credit banks, agricultural credit corporations, and livestock credit corporations, including loans secured by assets of banks that were closed or in the process of liquidation. All loans of the corporation were to be secured and have a maturity of not more than three years, although they might be renewed at maturity for two more years. The funds of the corporation were also made available to railways with the permission of the Interstate Commerce Commission, provided the roads could not borrow on reasonable terms from the banks or the public.

The unemployment relief act increased the capitalization of the Reconstruction Finance Corporation by \$1,800,000,000, to be raised by the sale of debentures. Of this amount \$300,000,000 was for immediate advances to States for direct relief work and \$1,500,000,000 for loans to States, municipalities, and public agencies for self-liquidating projects. The President refused to sign this bill until a provision authorizing the corporation to lend to private corporations and individuals was eliminated.

INCOME AND EXPENDITURES

Gain in Federal Revenue.—As already noted, the measures taken by the last Congress to increase Government revenues and reduce expenditures applied primarily to the budget for the fiscal year 1933. The Treasury estimated that the new revenue law would increase the income

of the Government by \$1,118,500,000, distributed as follows:

Income taxes	\$299,000,000
Increased postal rates..	160,000,000
New tariffs	6,500,000
Stamp taxes	45,500,000
Gift tax	5,000,000
Sales taxes	450,500,000
Admission tax	42,000,000
Tax on checks.....	78,000,000
Miscellaneous	32,000,000
Total	\$1,118,500,000

The increases shown above, added to the estimated amounts to be received during the fiscal year 1933 on the basis of previously existing rates, brought the total estimated revenue to \$3,213,500,000, which is nearly \$1,000,000,000 less than the Government received in 1929 but more than that sum in excess of the receipts for 1932. The total, it should be noted, includes \$270,000,000 in payments from foreign governments under the debt agreements. All revenue from this source was, of course, eliminated from the budget for 1932 by reason of the one-year moratorium on intergovernmental debts proposed by President Hoover in the summer of 1931.

Expenditures.—On the side of expenditures, the budget for 1933 contemplated important savings in nearly all the principal classifications. Expenditures for national defense were expected to be held to \$675,000,000, as against \$721,000,000 in the preceding year; veterans' relief was placed at \$983,000,000, as against \$989,000,000; public works at \$393,000,000, as against \$528,000,000; service on the public debt at \$640,000,000, as against \$1,017,000,000; and all other expenditures at \$508,000,000, as against \$1,650,000,000. A glance at these items suggests the uncertainty with which most of them are surrounded. The saving in veterans' relief is rather small and must be regarded as uncertain in view of the continuing agitation for cash payment of the adjusted compensation certificates. The large saving in debt service is more apparent than

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real, since it is due to the elimination of the annual appropriation to the sinking fund for debt retirement. This item, amounting to \$497,000,000, will reappear on the Treasury's books as a deficit at the end of the fiscal year. The item of "all other" expenditure is subject to change from many directions, including any further unemployment relief that may require appropriations by the new session of Congress.

Income and Outgo Analysis.—As a matter of fact, published figures covering receipts and expenditures for the first quarter of the new fiscal year show very clearly that the budget balance supposedly achieved by the last Congress was largely fictitious. Although expenditures for that period were held down to \$833,900,779, as against \$968,671,587 a year earlier, the saving was more than canceled by the shrinkage in receipts, which reached a total of only \$430,957,776, as compared with \$558,175,733 in the corresponding period of the preceding year. Income-tax receipts amounted to only \$174,140,501, as against \$313,837,121, and miscellaneous internal revenue to \$169,727,977, as against \$143,099,841, despite the imposing array of new taxes enacted by the last Congress. Yields from the various excise and other taxes provided in the revenue act of 1932 have been uniformly disappointing. As a result, total internal revenue for the quarter reached a total of only \$343,868,478, as against \$456,936,962 a year earlier. Customs receipts also declined

sharply from \$108,219,949 to \$68,927,329.

The net consequence of the heavy slump in receipts and the more moderate contraction in expenditures was a deficit for the period of \$402,943,003, as against \$380,495,854 at the end of the first quarter of the preceding fiscal year. The public debt at the end of the quarter stood at \$20,611,241,805, as against \$19,487,002,444 at the end of the fiscal year 1932. At that figure, the debt stood at approximately the same level as it did at the middle of 1925.

Conclusions.—To what extent the operations for the first quarter may indicate the trend for the fiscal year as a whole is extremely difficult to judge. The major uncertainties on the side of expenditures have already been indicated. On the side of revenues, the results for the remainder of the year will depend on what degree of improvement, if any may take place in general business conditions, on the yield of the higher income-tax rates, which will be reflected in receipts during the latter half of the fiscal year, and on any further tax legislation that may be passed by the session of Congress meeting in December, 1932. As far as it can now be judged, the outlook appears to indicate a substantial budgetary deficit for the current fiscal year unless new tax legislation is enacted or unless business expansion takes place at a considerably swifter rate than is generally anticipated.

STATE FINANCE

By MERLIN H. HUNTER

PROFESSOR, UNIVERSITY OF ILLINOIS

REDUCTION IN EXPENDITURES

It is much easier to discuss reduction in expenditure than actually to accomplish it. Many states, however furnish tangible evidence that expenditures for the current year will be considerably less than for the

preceding year. In fact, there are few states in which the budget does not show a substantial reduction. In some cases, however, this may not mean a decrease in expenditure. In South Carolina expenditures will not exceed 85 per cent of those of last

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year while in Mississippi the reduction has been about 30 per cent. In New York the appropriations were decreased \$30,000,000 in spite of an item of \$20,000,000 for unemployment relief.

CONSTITUTIONAL AMENDMENTS

People in many states are seeking to cure the fiscal difficulties by amendment to the constitution. Thus in Illinois the people are voting on an amendment to make it easier to amend the constitution. In Oklahoma an amendment was rejected which would place a tax limit in the constitution while the people of Michigan are voting on a similar amendment. In North Dakota, by amendment, the basis for the assessment of property was reduced from 75 per cent of true value to 50 per cent. In Kentucky an amendment has been proposed to exempt real estate and tangible personal property from taxation for state purposes. Louisiana proposes to levy a severance tax on all natural resources in lieu of all other taxes, the revenue to be shared with localities. Kansas votes to make possible income tax legislation while the present constitution of Alabama forbids such a vote in that state. An amendment has already been adopted in South Carolina which permits the classification of property. The tendency seems to be to change the existing liberality of constitutions. In those states where the constitutions are liberal they would make them more rigid. While in the others the amendments would liberalize them.

INCOME TAX DEVELOPMENTS

New and Pending Legislation.—In the emergency some states that had not used the income tax turned to it. In both Tennessee and Illinois laws were passed which inaugurated income taxes, but these were both declared unconstitutional by the Supreme Courts of the respective states. In Idaho, however, the outcome was different for the Supreme Court upheld the validity of the income tax law. The court took the position that income was not property and

therefore was not subject to the restrictions placed upon the taxation of property. The Illinois court, however, took the position that an income is property, and that a progressive income tax rate infringed upon the uniformity clause. Income tax bills were defeated in Michigan, Kentucky and New Jersey while legislation is being attempted in Indiana, Louisiana, Pennsylvania, Minnesota and West Virginia.

Rate Increases.—In many states with an income tax already in use, rates were increased to produce revenue to meet the emergency. At a special session in New York the rates were increased 50 per cent, the proceeds to go to unemployment relief. At a later session the rates were again increased by 50 per cent, the receipts this time to go into the general fund. These additional rates make the present rates progressive at 2, 4 and 6 per cent. In Wisconsin the rates were doubled for one year. In Mississippi the rates have been increased to range from 2.5 per cent to 6 per cent and exemptions have been reduced to \$750 for single person and \$1,500 for a married person. The exemption for corporations is reduced from \$1,500 to \$750. The troublesome question as to whether interest from tax exempt securities could be included in the gross income has finally been settled by the United States Supreme Court in *Pacific Co., Ltd. v. Johnson*. The right to include such income was affirmed.

SALES AND COMMODITY TAXES

The sales tax as a source of state revenue has recently been more favorably discussed than ever before. It may be said that West Virginia, Pennsylvania, Connecticut, Georgia, Kentucky, Missouri and Mississippi now impose a levy approaching a general sales tax. Every state, of course, levies a tax upon the sale of one or more commodities such as gasoline, tobacco, etc.

The tax adopted by West Virginia is the first attempt of the states to use this form of revenue. The receipts furnish about one-sixth of the revenue of the state. The percent-

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ages contributed by different types of business are as follows: coal, 30.7; oil and gas, 11.77; clay, sand, etc., .83; timber, .44; manufacturing, 23.64; sales exclusive of wholesale, 16.53; wholesale, 2.16; banks and public utilities, 7.87; other businesses, 6.69. Rates vary considerably from one type of business to another while an exemption of \$10,000 annually is granted in each case.

The state of Mississippi on May 1, 1932, put into effect a general sales tax as an attempt to secure revenue to save the credit of the state. The rates range from $\frac{1}{8}$ of 1 per cent to 2 per cent.

In Georgia and Kentucky, also, considerable reliance has recently been placed upon sales taxes while their use is seriously being considered in many other states, especially in Florida, South Carolina, Arkansas and Louisiana.

Most states now levy a tax upon the sale of some specific commodities. A tax upon gasoline is found in every state. The other articles most generally taxed are tobacco, cosmetics, soft drinks, and other so-called luxuries. Rates vary considerably from state to state.

BUSINESS TAXES

Available data indicates that different forms of business taxes are receiving more emphasis. Thus in Louisiana a tax is levied upon the capital stock of corporations at the rate of \$1.00 on each \$1,000 of capital stock, surplus and undivided profits, with a minimum tax of \$10.00. Some states have levied a tax upon the generation of electric power as in Idaho and South Carolina. The matter of chain store taxes does not yet seem to be settled. In spite of the Supreme Court decision upholding the Indiana tax on chain stores, other suits are pending before the Supreme Court. States other than Indiana have levied such taxes, although some are held in abeyance until litigation is settled. In Wisconsin the tax is from \$10 to \$50, gasoline service stations included, while in Arizona the tax range is from \$3 to \$25 with a store

range from one to twenty in each case. In Louisiana the tax range is from \$15 to \$200 with a store range from two to fifty. Gasoline filling stations whose daily stock does not exceed \$1,500 are not included.

MOTOR VEHICLE TAXATION

The difficulties involved have precluded any satisfactory legislation, and the system of taxation upon motor carriers is continually in flux with a wide difference from state to state. Thus in 1932 in Virginia an increase was made in truck registration fees, the range now going from \$60 for $2\frac{1}{2}$ ton capacity to \$1,150 for 10 ton capacity. The former rates were \$40 for $2\frac{1}{2}$ ton capacity to \$200 for 5 tons or over. The excise tax on passenger and property common carriers is increased from 1.5 per cent of gross receipts to 2 per cent. In New York the fee for trailers was increased from \$4.00 per ton to \$8.00 while a temporary increase of 65 per cent was levied upon trucks and buses, the receipts to go into the general fund.

In Mississippi there has been an increase in the highway privilege tax on trucks, trailers and buses plus a flat privilege tax. The mileage tax on buses becomes effective on all mileage over 12,000. The tax on the gross income of buses and trucks running between fixed termini is increased from $\frac{1}{2}$ of 1 per cent to 2 per cent. In both Kentucky and Louisiana additional levies have been made upon common carriers. In Kentucky the rate for buses range from $\frac{1}{4}$ cent to 3 cents per mile, based upon seating capacity, and for common carriers $\frac{1}{2}$ cent per mile up to 3 ton weight and $\frac{1}{2}$ cent additional for each ton above 3. An additional charge of 30 per cent is levied upon foreign cars used in interstate business over regular routes. In Louisiana common and contract carriers are placed in the same class and taxed at the same rates. The method used is license fee plus a weight tax. The validity of the gross earnings tax levied by Montana is being tested in the courts.

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MISCELLANEOUS TAX LEGISLATION

The emergency has caused many types of legislation which otherwise would not have been considered. More attention is being given to central supervision over local expenditures, taxes and borrowing. Thus Michigan gives the state control over local indebtedness, and Virginia has moved towards a consolidation of local units in addition to taking over county roads as a part of the state highway system. Much attention is also being given to tax delinquency. Legislation to alleviate the burden of delinquency includes suspension of the operation of laws relating to the seizure and sale of property for non-payment of taxes; partial payment on redemption of taxes; installment payment and reduction of penalties; and other adjustments to aid the taxpayer. Many laws were passed in the different states, also, to meet the need for poor relief.

CENTRALIZATION IN NORTH CAROLINA

In 1931, after much discussion, it was voted in North Carolina that the state take over through the State Highway Department under the Highway Commission the complete job of maintenance and construction of all county roads. A sum of \$6,000,000 was appropriated for the purpose, for which the counties had been spending in excess of \$8,000,000. The gasoline tax was increased from 5 to 6 cents and the counties prohibited from levying any tax whatever on property for county road maintenance or construction.

The Governor reports that the people as a whole are finding the utmost satisfaction with results. They are

traveling over the best county roads they have ever traveled and their tax bills do not contain 1 cent of levy for road maintenance. North Carolina transports more public school children than any other state. Because of better roads under the new system of administration, the cost of transportation was reduced by \$350,000 the first year. At the end of eight months of state administration less than \$4,000,000 of the \$6,000,000 appropriated had been used and this included some rather large necessary initial outlays. The provision of the constitutional minimum of public education has also been taken over by the state.

ACTIVITIES OF TAX COMMISSIONS

The problem of continuing public activities from sources of revenues which seem inclined to produce an ever-decreasing amount has been responsible for an increased activity in many state tax commissions. Thus the Commission of Georgia pushed the Fox Film case to allow states to tax business incomes which partially arose from governmental agencies. In Minnesota progress is being made towards income taxation. In Mississippi the Commission has been especially active with the sales tax, while the New Jersey Commission has been active along somewhat similar lines. The Commission of Indiana has given much attention to property tax readjustments. Texas has made a special study of some of the tax problems. And so one might go through the list of states and find a renewed activity actuated by emergencies created by economic conditions. It is to be hoped that a more just and workable tax system may be the outcome.

MUNICIPAL FINANCE

BY MERLIN H. HUNTER

PROFESSOR, UNIVERSITY OF ILLINOIS

EXPENDITURES

Growth.—As long as the social in-

come was increasing it was easy for governmental units to expand func-

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tions, and to increase expenditures for operations already in existence, without much objection from the citizens. It is only with the decrease in income of recent years that the cry for retrenchment has been heard. The data for city expenditures show that

before 1928 the tendency for expenditures as a whole, as well as for the different types of services, was to increase. This is illustrated by the following table, in which it will be noted that the marked tendency to increase continues from 1928 to 1929.

MUNICIPAL EXPENDITURES

(000 omitted)

OPERATION AND MAINTENANCE OF GENERAL DEPARTMENTS: 146 CITIES

Year	Total	General Government	Protection to Person and Property	Health and Sanitation	Highways
1929.....	\$1,730,288	\$150,521	\$339,816	\$174,858	\$147,375
1928.....	1,656,989	147,250	328,102	167,979	138,936
1927.....	1,562,615	136,848	315,362	160,259	137,892
1926.....	1,464,849	128,365	295,256	148,653	132,321
1924.....	1,287,484	111,856	259,275	130,388	109,807
1922.....	1,155,691	105,174	234,199	115,448	98,763
1919.....	697,319	72,585	146,763	75,847	65,003
1917.....	591,399	68,912	126,854	60,378	60,712
1915.....	546,568	62,793	120,696	55,758	60,615
1913.....	496,740	58,164	112,676	50,600	55,082
1911.....	452,899	53,766	106,120	45,691	52,214
1909.....	407,106	49,810	98,692	41,092	43,195
1907.....	367,367	42,703	87,885	36,899	42,718
1905.....	304,496	30,423	76,957	29,737	36,373
1903.....	278,173	30,842	71,020	25,807	34,208

Year	Charities, Hospitals, and Corrections	Schools	Libraries	Recreation	Miscellaneous
1929.....	\$116,147	\$622,587	\$23,029	\$61,863	\$94,091
1928.....	111,052	598,065	21,847	56,038	87,715
1927.....	99,806	560,668	20,167	53,839	77,771
1926.....	89,987	528,986	18,665	50,427	72,180
1924.....	79,239	475,725	15,782	41,819	63,690
1922.....	76,627	422,843	14,326	38,703	49,603
1919.....	53,262	216,701	9,079	24,204	33,870
1917.....	43,911	180,259	7,570	20,636	22,164
1915.....	38,285	162,332	7,134	20,416	18,635
1913.....	32,702	141,463	6,379	18,555	21,125
1911.....	30,647	127,604	5,939	17,114	13,801
1909.....	28,133	114,381	6,242	14,076	11,480
1907.....	24,408	102,395	4,989	11,794	13,572
1905.....	19,319	87,600	4,153	10,201	9,728
1903.....	18,280	80,853	4,067	7,457	5,634

Per Capita Expenditures.—While some of the absolute expenditures just noted may appear large, yet little significance can be attached to them. The size of an expenditure becomes intelligible in terms of service when one

discovers the number of individuals among whom it is divided. The per capita expenditures of the cities, both as a whole and for particular items has varied greatly from time to time, but the general tendency has been to

VII. PUBLIC FINANCE AND TAXATION

increase. Thus as a whole the per capita expenditures of cities increased from \$13.19 in 1903 to \$43.45 in 1929, or an increase of nearly 230 per cent. The following table shows the change in per capita expenditures for selected years.

PER CAPITA EXPENDITURES

Year	Total	General Government	Protection to Person and Property*	Health and Sanitation	Highways	Charities, Hospitals, and Corrections	Education		Recreation†	Miscellaneous*
							Schools*	Libraries†		
1929.....	\$43.45	\$3.66	\$8.46	\$4.33	\$3.70	\$2.78	\$16.14	\$0.59	\$1.55	\$2.25
1928.....	42.43	3.66	8.33	4.24	3.56	2.70	15.80	0.57	1.44	2.14
1927.....	40.77	3.46	8.13	4.13	3.60	2.49	15.08	0.53	1.40	1.94
1926.....	35.99	3.32	7.77	3.90	3.55	2.29	14.49	0.50	1.34	1.83
1924.....	35.61	3.01	7.10	3.55	3.07	2.08	13.52	0.44	1.15	1.67
1922.....	33.15	2.94	6.66	3.25	2.87	2.08	12.50	0.41	1.09	1.34
1919.....	21.63	2.22	4.53	2.34	2.04	1.59	6.88	0.28	0.74	1.01
1917.....	18.96	2.18	4.04	1.93	1.96	1.36	5.89	0.25	0.66	0.69
1915.....	18.45	2.10	4.06	1.86	2.06	1.26	5.58	0.24	0.68	0.61
1913.....	17.23	2.00	3.89	1.75	1.93	1.11	4.98	0.22	0.63	0.71
1911.....	17.62	2.08	4.12	1.77	2.04	1.17	5.04	0.23	0.65	0.53
1909.....	16.07	1.96	3.89	1.62	1.71	1.10	4.54	0.25	0.55	0.45
1907.....	15.95	1.86	3.80	1.59	1.91	1.05	4.42	0.21	0.51	0.59
1905.....	13.88	1.38	3.52	1.35	1.67	0.88	3.99	0.19	0.47	0.44
1903.....	13.99	1.46	3.35	1.21	1.64	0.86	3.86	0.10	0.35	0.27

* Payment for pensions are included in column "Miscellaneous" for the years 1911 to 1928, inclusive; for the years 1903 to 1909, inclusive, they are included with expenses of police, fire, and school departments.

† Payments for expenses of art galleries and museums are included in column "Recreation" for the years 1911 to 1928, inclusive; for the years 1903 to 1909, inclusive, they are included with the expenses of libraries.

Functions.—There is a wide difference in the importance attached to the different functions performed by municipalities. While over a period of years there have been some changes in the relative importance of some of

PERCENTAGE OF EXPENDITURES FOR DIFFERENT FUNCTIONS

Year	General Government	Protection to Person and Property	Health and Sanitation	Highways	Charities, Hospitals, Corrections	Education		Recreation	Miscellaneous
						Schools	Libraries		
1929...	8.4	19.5	10.0	8.5	6.4	37.2	1.4	3.6	5.2
1928...	8.6	19.6	10.0	8.4	6.4	37.2	1.3	3.4	5.0
1927...	8.5	20.0	10.1	8.8	6.1	37.0	1.3	3.4	4.8
1926...	8.5	19.9	10.0	9.1	5.9	37.2	1.3	3.4	4.7
1924...	8.5	19.9	10.0	8.6	5.9	38.0	1.2	3.2	4.7
1922...	8.9	20.1	9.8	8.7	6.3	37.7	1.2	3.3	4.0
1919...	10.2	21.0	10.8	9.4	7.3	31.8	1.3	3.4	4.7
1917...	11.5	21.4	10.1	10.4	7.2	31.1	1.3	3.5	3.5
1915...	11.4	22.0	10.1	11.2	6.8	30.2	1.3	3.7	3.3
1913...	11.6	22.6	10.1	11.2	6.4	28.9	1.3	3.7	4.2
1911...	11.8	23.4	10.1	11.6	6.6	28.6	1.3	3.7	3.0
1909...	12.2	24.2	10.0	10.6	6.9	28.2	1.5	3.4	2.8
1907...	11.7	23.8	9.9	12.0	6.6	27.7	1.3	3.2	3.6
1905...	10.0	25.3	9.7	12.0	6.3	28.7	1.4	3.4	3.2
1903...	11.1	25.3	9.2	12.4	6.5	29.3	1.5	2.7	2.1

MUNICIPAL FINANCE

the items, it is interesting to note that expenditures for education have always been far larger than any other, and that the relative importance of this item has increased as the years have gone by. The need for attention to be devoted to health and sanitation has also been more marked in recent years, while protection and highways have commanded a smaller percentage of the expenditures than formerly. The table (p. 208) shows the relative importance of the different services over a period of years.

Operation and Maintenance of Public Service Enterprises.—Many

cities operate some form of public service enterprise, that is, according to the Census Bureau, "those enterprises, or branches of municipal service which are established and maintained by city governments for the purposes of providing the public, or the public and the city, with some utility or service, such as water, electricity or gas." Of these utilities the systems which supply water are far more important than any other. The finances for such enterprises, for a number of years, are shown in the following table:

OPERATION OF MUNICIPAL WATER PLANTS

(000 omitted)

Year	Revenue Receipts	Payments		
		Total	Operation and Maintenance	Outlays
1929.....	\$162,957	\$162,952	\$73,864	\$89,088
1928.....	155,025	154,657	73,207	81,450
1927.....	.....	.....	.....	.....
1926.....	147,315	164,878	69,173	95,705
1924.....	127,484	170,805	65,609	105,195
1922.....	108,426	*	56,923	*
1919.....	86,273	80,675	41,687	38,988
1917.....	76,984	63,918	31,886	32,033
1915.....	70,600	76,609	30,218	46,391
1913.....	65,318	91,276	29,227	62,049
1909.....	57,106	76,453	23,519	52,933
1905.....	47,397	41,582	18,677	22,904

* Not reported separately.

Other Expenditures.—The expenditures just described are designated as "expenses" by the Census Bureau. In addition there are a number of other expenditures, the most important of which are for interest and outlays. The interest payments are for the funded and floating debt, special assessment loans, and other minor types of borrowing. In 1929 the total interest payment was \$365,691,000. Of this amount 87.6 per cent was paid on funded and floating debt, 7.6 per cent on special assessment loans, and 4.8 per cent on miscellaneous debt obligations. Expenditures for outlays comprise the amounts paid for the acquisition and construction of more or less permanent properties and per-

manent improvements, including payments for additions made to those previously acquired or constructed. Such payments in 1929 reached a total of \$967,065,000. This exceeded the increase in the net debt for the year by \$663,047,000, indicating that a large part of the outlay was made from other borrowing.

REVENUE

Sources.—The revenue of cities arises from a number of sources. In most cities more than 90 per cent of the funds which go into the general revenue fund come from the general property tax levied against real and personal property. In addition the Census Bureau designates certain taxes

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as special property taxes including taxes upon the capital stock of corporations, upon savings banks and other financial institutions and upon insurance companies. Included in this, also, would be taxes levied upon mortgages at time of recording, taxes upon incomes and estates, upon investments, and a wide range of specific taxes such as a definite levy upon each telephone pole, upon each ton of grain, etc.

Tax Levies and Assessments.—In many cities, also, some form of poll tax continues to be used, although such taxes are much less important than formerly. No generalization can be made as to method of levy since this varies greatly from city to city.

In addition, business and non-business license taxes make up a large group of levies upon different types of business activities, some of which, of course, are levied primarily for regulative purposes. The latter include levies upon dogs, dance halls, etc. Receipts from the special assessment constitute an important item, but such do not enter the general revenue fund. In some places at a particular time subventions and grants are an important source of income while in some cities, also, the earnings from public service enterprise are not unimportant. The relative importance of the more important sources of revenue over a period of years is shown in the following table:

PERCENTAGE OF RECEIPTS FROM DIFFERENT SOURCES OF REVENUE

Year	General Property Tax	Other Taxes	Special Assessments	Subventions and Grants, Donations, and Pension Assessments	Earnings of Public Service Enterprises	Other Revenues
1929.....	64.7	6.4	7.2	5.8	9.8	6.1
1928.....	66.1	5.8	7.6	5.4	9.2	5.9
1927.....	66.1	5.7	7.7	4.9	9.6	6.2
1926.....	65.7	5.9	7.2	4.9	10.0	6.4
1924.....	66.1	5.7	5.9	5.3	10.3	6.8
1922.....	66.9	5.2	4.8	5.9	9.0	8.2
1919.....	66.0	7.6	5.6	4.1	10.2	6.4
1917.....	64.3	7.4	7.8	4.0	9.9	6.6
1915.....	62.4	7.8	8.5	4.2	10.0	6.9
1913.....	62.4	8.5	8.2	4.5	9.0	6.6
1911.....	61.9	8.7	8.4	4.6	10.6	5.8
1909.....	61.0	9.7	8.4	4.9	10.9	5.3
1907.....	59.4	10.6	8.2	4.8	11.2	5.8
1905.....	61.5	9.6	7.9	4.7	11.4	5.0
1903.....	61.4	9.8	7.6	4.3	11.5	5.5

Per Capita Tax Burden.—That the tax burden imposed by cities has been increased much more rapidly than population is readily seen when one notes the change in the per capita amounts collected from different sources over a period of years. Because of the retrenchment in expenditures necessitated by economic conditions the trend indicated in the table (p. 211) is not likely to continue.

MUNICIPAL INDEBTEDNESS

Receipts from sources of revenue may either just pay expenses, more

than pay expenses, or fail to pay them. In many cases the administration of the finances have planned for a surplus but because of a shrinkage in revenues have had to resort to borrowing. In many cases, also, where borrowing has been used to excess during the last few years, cities find themselves unable to pay the interest on their obligations and their securities are in default. This condition has resulted in much attention to the problems of financing local governments with the query being put with reserved force as to whether more

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PER CAPITA RECEIPTS FROM DIFFERENT SOURCES

Year	Total	General Property Tax	Other Taxes	Special Assess- ments	Subventions and Grants, Donations, and Pension Assessments	Earnings of Public Service Enter- prises	Other Reve- nues
1929.....	\$69.63	\$45.07	\$4.43	\$5.01	\$4.02	\$6.82	\$4.28
1928.....	72.11	47.67	4.18	5.52	3.87	6.65	4.23
1927.....	69.77	46.09	3.95	5.36	3.40	5.67	4.29
1926.....	66.14	43.46	3.90	4.75	3.23	6.60	4.20
1924.....	58.41	38.59	3.33	3.43	3.12	6.00	3.96
1922.....	53.57	35.85	2.80	2.58	3.13	4.83	4.38
1919.....	35.26	23.29	2.68	1.98	1.43	3.61	2.27
1917.....	31.97	20.57	2.37	2.50	1.28	3.13	2.12
1915.....	30.00	18.73	2.36	2.54	1.26	3.03	2.08
1913.....	28.55	17.82	2.42	2.34	1.28	2.81	1.88
1911.....	28.07	17.37	2.44	2.35	1.30	2.98	1.63
1909.....	26.42	16.14	2.48	2.22	1.28	2.89	1.40
1907.....	24.67	14.64	2.63	2.02	1.18	2.77	1.43
1905.....	22.79	14.01	2.17	1.80	1.08	2.60	1.14
1903.....	21.14	12.98	2.06	1.60	0.91	2.42	1.16

stringent regulations should not be put upon the borrowing power of local governmental units.

In the calculations of the Census Bureau municipal indebtedness is divided into two distinct groups, funded debt and floating debt. The former includes all obligations represented by formal investments which have a number of years to run and for the redemption of which no assets other than a sinking fund have been speci-

fically designated. The latter, on the other hand, includes such indebtedness as is evidenced by warrants and accounts payable, by short term bonds, etc. The gross indebtedness is, of course, the total amount, while to subtract from this the value of the assets in a sinking fund will indicate the net indebtedness. The following table shows the total indebtedness, the sinking fund assets, and the net indebtedness for certain years.

MUNICIPAL INDEBTEDNESS

Year	Funded or Fixed, and Floating Debt	Sinking Fund Assets		Net Debt	
		Amount	Per Capita	Amount	Per Capita
1929.....	\$7,233,151,957	\$1,703,316,343	\$44.45	\$5,529,835,614	\$144.33
1928.....	6,860,660,257	1,607,178,159	42.72	5,253,482,098	139.27
1927.....	6,456,781,181	1,513,273,535	41.10	4,943,507,646	134.27
1926.....	6,040,399,634	1,407,596,435	38.93	4,632,803,199	128.13
1924.....	5,057,023,870	1,215,043,841	34.82	3,841,980,029	110.09
1922.....	4,332,114,718	1,051,468,771	31.27	3,280,645,947	97.57
1919.....	3,352,688,786	811,516,426	25.93	2,541,172,360	81.18
1917.....	3,150,424,610	704,573,046	23.26	2,445,851,564	80.75
1915.....	2,866,008,818	620,102,406	21.60	2,245,906,412	77.86
1913.....	2,490,461,618	540,454,805	19.20	1,950,006,813	69.28
1911.....	2,305,059,142	496,230,750	11.52	1,808,828,392	67.52
1909.....	1,959,162,993	422,063,594	16.81	1,537,099,399	61.21
1907.....	1,657,320,345	362,441,586	15.68	1,294,878,759	56.04
1905.....	1,438,741,403	319,395,648	14.63	1,119,345,755	50.94
1903.....	1,223,101,328	290,096,696	13.90	933,004,632	44.71

VII. PUBLIC FINANCE AND TAXATION

TAX LEGISLATION

BY BEULAH BAILEY

LIBRARIAN, NEW YORK STATE DEPARTMENT OF TAXATION AND FINANCE

STATE LEGISLATIVE SESSIONS

Finance was the question of the moment in every state legislature this year. As a result of 1932 fiscal difficulties, eleven States, Alabama, Arkansas, Illinois, Indiana, Maine, Michigan, Ohio, Pennsylvania, Texas, Virginia and West Virginia were in special session. The States in regular session were Kentucky, Louisiana, Massachusetts, New Jersey, New York, Rhode Island and South Carolina. December 9, 1932, New York State was called in special session for the purpose of alleviating the fiscal difficulties of New York City.

TAX PAYMENTS BY INSTALLMENT

The two outstanding questions were (1) how to ameliorate the collection of taxes both current and delinquent and (2) how to procure additional revenue. Alabama, Kentucky, Massachusetts, Michigan, Mississippi, New Jersey, Pennsylvania and Rhode Island are permitted to collect general property taxes on the installment plan. The Massachusetts and New Jersey provisions provide for the advance installment payment on city taxes with adjustment possible if the taxpayer has paid too much or too little. The installment payment of delinquent taxes and in some cases the adjustment of penalties and interests is provided for by legislation in Illinois, Kentucky, Louisiana, Michigan, Mississippi, New Jersey, Pennsylvania, Texas and West Virginia. In Kentucky the governor is given the right, in case of continued unemployment, to extend the time for payment of due taxes. Minnesota and Ohio are both making special studies of the question of tax delinquencies. Three states, Michigan, Oregon and Washington by constitutional amendment or referendum, passed laws limiting the amount of tax levies.

SOURCES FOR ADDITIONAL REVENUE

Sales Tax.—Today the most discussed source of additional revenue is the sales tax. Arkansas rejected a constitutional amendment limiting the state property tax to $\frac{1}{2}$ mill and enacting a 1 per cent general sales tax. In California an amendment providing for a selective sales tax was rejected by the electorate. Mississippi repealed its 1930 sales tax and enacted the "Emergency Revenue Act of 1932." This is effective until June 30, 1934, and the rate range is from 1 per cent to 2 per cent, the former was from $\frac{1}{10}$ of 1 per cent to 1 per cent. A six months emergency sales tax of 1 per cent on the gross income derived from the sale of tangible personal property was enacted in Pennsylvania. Proceeds from this tax are for unemployment relief.

Tobacco and Beverages.—Two states, Alabama and Louisiana, levied tobacco taxes. In Alabama the revenue is for the Special Educational Trust fund and in Louisiana for the general fund. These same states levied taxes on beverages. In Alabama the beverage is limited to "near beer," but in Louisiana it is upon all soft drinks. Mississippi places a tax of 3 cents per pound upon malt and in its tobacco tax includes smoking tobaccos.

Chain Stores.—There is still current litigation in regard to chain store taxes. The cases to be decided are the Mississippi case, Penny Stores, Inc. v. Mitchell and the Florida chain store case of Liggett v. Amos. Arizona, Louisiana and Wisconsin have this year levied chain store taxes. In Arizona and Wisconsin the revenue is for emergency relief; in Louisiana for the localities.

Dairy and Meat Products.—Kentucky placed a license fee on dealers in oleomargarine and a tax of 10

TAX LEGISLATION

cents a pound on its sale. Louisiana levies a tax of $1\frac{1}{4}$ per cent on gross receipts from the sale of oleomargarine, cheese, butter, ice cream, milk products and certain meats; products sold directly from farm to consumer are exempt. Michigan and Oregon rejected existing laws levying a tax upon butter substitutes, and South Dakota passed a constitutional amendment permitting a tax of 10 cents a pound on the same.

RECIPROCAL TAX COLLECTION

For the past seven years we have had laws enacting reciprocity in regard to the taxing of the intangible personality of non-resident decedents, until 39 states have such reciprocity. This year four States, New York, New Jersey, Rhode Island and Virginia passed reciprocal laws in regard to the collection of death taxes. A state is required to cooperate with the domiciliary taxing authorities of a reciprocal state and furnish such information as may be requested. Louisiana passed legislation taking advantage of the 80 per cent Federal credit provision.

INCOME TAX LEGISLATION

In November, five states, Alabama, California, Colorado, Indiana and Minnesota rejected an income tax and Oklahoma rejected a new income tax at a higher rate. Kansas and West Virginia passed constitutional amendments empowering its legislatures to enact an income tax. Washington by the initiative passed an income tax law based on the Wisconsin law. The Wisconsin tax is so drawn that it will not be a double tax on real estate. There are two offset provisions. (1) Home owners may deduct up to \$50 from income taxes for any real estate taxes paid on a home; (2) the taxpayer has a 50 per cent offset for real estate taxes or personal property taxes paid. This year the recently enacted income tax laws of both Illinois and Tennessee were held unconstitutional by the respective states' Supreme Courts.

The income tax rates were increased in Mississippi and the ex-

emptions decreased. New York State increased its rate 100 per cent; 50 per cent at a special session in 1931 and 50 per cent at the regular session of 1932. The increase is temporary, 50 per cent goes to unemployment relief, 50 per cent to the general fund. New York shares the income from the permanent tax with the locality. Wisconsin also temporarily doubled its rates, the yield from the increase is to go to unemployment relief.

CORPORATION TAX LEGISLATION

Louisiana levied a franchise tax on corporations of \$1.00 on each \$1,000 of capital stock, surplus and undivided profits, and a 2 per cent tax on gross sales of electric power. Idaho last year levied a tax on electric power generated. The constitutionality was questioned but the state tax was this year sustained by the United States Supreme Court. The court in South Carolina denied an injunction against a similar tax, but the power companies are trying to appeal it.

A 1 per cent additional tax, making the total tax $2\frac{35}{100}$ per cent, was levied in Ohio on gross receipts of certain public utility companies, and a $15/100$ of 1 per cent additional tax, making the total tax $1\frac{1}{2}$ per cent, was levied on the value of the capital stock of sleeping cars, freight line and equipment companies. These additional taxes are effective until 1937. The yield is to be reserved for poor relief. In Florida the court has held that the tax on gross receipts of public utilities operated by a municipality is valid.

COMMISSION REPORTS

Three special commissions have reported during 1932, the Research Commission of Mississippi, the New York State Commission for the Revision of the Tax Laws, and the Alabama Commission to study the reorganization of state government. Virginia gives its counties the right to choose their own form of local government even to assigning their county road system over to the state

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for maintenance and administration. Massachusetts authorized a Special Recess Committee to consider how to reduce the cost of government. This committee is to report December 31, 1932. An amendment was rejected in California which would have transferred the cost of education from the county to the state. In Michigan the state has been given supervision over local legislative bodies in the refunding of bonds and note obligations. The Louisiana Tax Reform Commission to equalize the tax burden was authorized. It is to report January 1, 1933. The Special Commission in New York has been continued. This year the

problem is the reduction in the cost of local government.

ASSESSMENT

A referendum was held in Arizona in November on whether or not \$250,000 would be appropriated for an entire reassessment of the state and an economic and fiscal survey of the state. North Dakota by constitutional amendment reduced the basis of assessment of property from 75 cents to 50 per cent of true value. Texas by the same means is granting a state tax exemption to owned homes up to \$3,000. Louisiana added to its exempt list all the real property of gymnasiums and athletic associations.

INCOME TAXES

BY MABEL NEWCOMER

PROFESSOR, VASSAR COLLEGE

FEDERAL INCOME TAX

Rates and Exemptions.—The serious decline in the yield of Federal taxes has led to drastic revision of the income tax as a part of the program for balancing the budget. The normal tax rates have been increased to 4 per cent on the first \$4,000 of taxable income, and 8 per cent on the excess of net income over \$4,000. The surtaxes begin with one per cent on the excess of net income over \$6,000 and rise to 55 per cent on net income in excess of \$1,000,000. Personal exemptions have been lowered to \$1,000 for single persons, and \$2,500 for heads of families. No change has been made in the \$400 credit for dependents. The exemption for estates and trusts is \$1,000. The corporation income tax rate has been increased to 13¾ per cent, with an additional three-fourths of one per cent on con-

solidated returns. The latter is for 1932 and 1933 only. Deductions for losses incurred from sales of securities held less than two years are subjected to a new limitation. Changes have also been made in the depletion allowances for mines.

Revenue.—Revenues from personal and corporation income taxes combined for the fiscal year ended June 30, 1932, amounted to only 57 per cent of collections for the year preceding, and were only 44 per cent of the amount collected two years earlier. Collections for the first quarter of the fiscal year 1932-33 are 45 per cent below collections for the same quarter of the year preceding, having dropped from \$314,000,000 to \$174,000,000. To what extent this decline will be offset by increased collections under the new rates in force for 1933 it is difficult to estimate.

REVENUE FROM FEDERAL INCOME TAX

(in thousands of dollars)

Fiscal Year	Corporation Tax	Personal Tax	Total Tax	Per Cent of All Federal Taxes from Income Tax
1931-32.....	\$ 629,604	\$427,275	\$1,056,879	56.1
1930-31.....	1,026,444	833,753	1,860,202	66.3

INCOME TAXES

STATE INCOME TAXES

Washington.—A new income tax has been introduced in the State of Washington as the result of the November elections. It provides for a graduated tax on incomes of individuals and corporations, and is apparently designed to reach individuals not paying property taxes in the State, since property taxes are deductible from income, and again from the income tax as computed. The latter deduction is limited to \$50 for taxes paid on residences, and 50 per cent of the income tax as computed for taxes on other property.

Amendments.—A constitutional amendment providing for an income tax was voted on and carried in Kansas and West Virginia in the November elections. Similar constitu-

tional amendments were defeated in Alabama, Colorado, Indiana and Minnesota. Measures providing for changes in existing income taxes were defeated in Arkansas, Oregon and Oklahoma.

Rates and Exemptions.—Wisconsin, at a special session of the legislature, doubled the rates of the personal income tax for one year, the additional yield to be applied to unemployment relief. The New York legislature voted to continue for another year the 5 per cent increase in personal income tax rates in force in 1932. The revenue is to go to the general fund. Mississippi increased rates and reduced personal exemptions.

New Tax Laws.—The Illinois legislature passed a law providing for a graduated tax of from one to six per

DIGEST OF STATE PERSONAL INCOME TAX PROVISIONS

State	Year First Effective	Personal Exemptions			Rates of Tax (Per Cent)	Amount of Taxable Income in Excess of Which Maximum Rate Applies
		Single	Head of Family	Dependents		
Ark.....	1929	\$1,500	\$2,500	\$400	1 - 5	\$25,000
Del.....	1917	1,000	2,000	—	1 - 3	10,000
Ga.....	1930	1,500	3,500	400	1 - 5	20,000
Idaho.....	1931	1,000	2,500	300	1 - 4	6,000
Mass.....	1917	2,000	2,500	250 (a)	1½-6 (b)	—
Miss.....	1914	750	1,500	200	2½-6	15,000
Mo.....	1917	1,000	2,000	200	1 - 4	9,000
N. H.....	1924	200	200	—	(c)	—
N. Y.....	1919	2,500	4,000	400	1½-4½	50,000
N. C.....	1921	1,000	2,000	200	2 - 6 (d)	10,000
N. D.....	1919	1,000	2,000	300	1 - 6	10,000
Okla.....	1913	750	1,500	750	2 - 5	100,000
Ore.....	1930	1,500	2,500	400	1 - 5 (e)	4,000
S. C.....	1922	1,200	2,200	400	1 - 5	8,000
Tenn.....	1929	(f)	(f)	—	5 (g)	—
Utah.....	1931	1,000	2,000	400	1 - 4 (h)	8,000
Va.....	1843	1,250	2,800	400	1½-3	5,000
Vt.....	1931	1,000	2,000	250 (i)	2 - 4 (j)	—
Wash.....	1932	(k)	(k)	(k)	1 - 7 (m)	12,000
Wis.....	1911	(l)	(l)	(l)	2 -12 (n)	12,000

(a) Exemptions apply to earned income. There is a flat exemption on unearned income of \$300. (b) Earned income and annuities 1½%; capital gains 3%; interest and dividends 6%. (c) Average rate on real estate. Applies only to income from interest and dividends. (d) Income from stock of foreign corporations taxed 6%. (e) Exemptions and rates do not apply to income from intangibles. This is taxed at 8% with a \$500 exemption for a single person and \$800 for heads of families. (f) Income from \$1000 worth of stocks and bonds. (g) Applies only to income, from dividends and interest. (h) Property tax offset is provided to the extent of one-third of the tax. (i) In case all income is from intangibles exemptions are \$400 for a single person and \$800 for the head of a family. (j) 2% on all income excepting that from intangibles; 4% on income from intangibles. (k) In place of exemption taxpayers must deduct from their tax after it has been computed \$8 for a single person, \$17.50 for a head of family, and \$4 for each dependent. (l) In place of exemption taxpayers must deduct from their tax after it has been computed \$8 for a single person, \$17.50 for a head of family, and \$3 for each dependent. (m) Certain property tax offsets may be deducted. (n) Including surtax for teachers' pensions rates are 2½ to 13 per cent.

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cent on personal incomes. This law has been held unconstitutional, however, by the State supreme court, on the ground that income is property which cannot be assessed on a graduated scale. The Idaho law of 1931 has been held constitutional by the Idaho State supreme court. The State supreme court of Tennessee has declared the general income tax law of 1931 unconstitutional but the tax on the income of stocks and bonds imposed in 1929 remains. The court ruled that since the constitution specifically empowered the legislature to levy taxes on stocks and bonds *not* taxed *ad valorem* it must be inferred that no other income tax can be levied.

Present Status.—The present status of state income taxes is as follows:

Sixteen states are taxing personal and corporation income. Four states are taxing personal income only. And three states have taxes on corporation income only. All of these states excepting Delaware, Massachusetts, New Hampshire, Tennessee, Utah and Vermont, tax such income of non-residents as they can reach. New York, North Carolina and South Carolina, however, credit non-residents with the amount of any income tax paid in the state of residence if such state allows similar credits. All of these states but Wisconsin tax residents on income derived from sources outside of the state, with only Georgia, Missouri, North Carolina and South Carolina allowing credits for income taxes paid in other states.

DIGEST OF STATE CORPORATION INCOME TAX PROVISIONS

State	Year When First Effective	Kind of Corporations Exempt	Amount of Income Exempt	Rate of Tax (Per Cent)	Exemption of Dividends of Other Corporations Paying Income Tax to State	Exemption of Interest from Government Bonds
Ark.....	1929	—	\$1500	2	—	x
Cal.....	1929	Public utilities; insurance	—	4	x	—
Conn.....	1915	Public utilities; insurance; banks	3000 (a)	2	—	—
Ga.....	1930	Insurance; banks	—	4	—	x
Idaho.....	1931	—	—	1-4	x	—
Mass.....	1919	Public utilities; insurance	—	2½ (b)	x	—
Miss.....	1914	Banks	750	2	—	—
Mo.....	1917	Express; insurance; banks	—	2½-6 (c)	x	x
Mont.....	1917	Express; national banks	2500	1	—	—
N. Y.....	1917	Public utilities; insurance; real estate	—	4½	—	—
N. C.....	1921	Foreign insurance; national banks	—	5½ (d)	x	x
N. D.....	1919	Insurance; national banks	—	3	x	x
Okla.....	1931	Insurance	—	2-5	x	x
Ore.....	1930	—	—	8 (e)	—	x
S. C.....	1922	Insurance; banks	—	4½	x	x
Va.....	1927	Public utilities insurance; banks	—	3	x	x
Vt.....	1931	Public utilities; insurance; national and savings banks	—	2	x	x
Wash.....	1932	—	—	1-7 (f)	x	x
Wis.....	1911	Public utilities; insurance	—	2-6 (g)	x	x

(a) Same as Federal. (b) Bank rate to be determined by Commissioner; not to exceed highest rate applied to business corporations. (c) Same as personal; maximum on taxable income in excess of \$15,000. (d) Income from stock of foreign corporations taxed 6%. (e) Income from intangibles only. (f) Seven per cent applies to all income in excess of \$12,000. (g) Six per cent applies to all income in excess of \$6,000.

LAND AND PROPERTY TAXES

Revenue from State Income Taxes.
—In Arkansas \$500,000 of the tax is credited to the charities fund and \$750,000 to the common school equalization fund. The remainder is for general State use. In Delaware the greater part of the proceeds of the income tax is credited to the State school fund. In Oklahoma and Utah three-fourths of the proceeds of the tax is to be paid into the State school fund and one-fourth into the general fund. In Vermont \$300,000 is to be paid to the State school fund and \$150,000 to the towns and villages for roads. In Massachusetts the State retains the temporary additional tax on personal income and enough of the regular tax to cover the cost of administration. The remainder is dis-

tributed to the local districts. The corporation tax is distributed, five-sixths to the cities and towns and one-sixth to the State. In New Hampshire the proceeds over the cost of administration are turned over to the towns and cities. In New York half of the regular personal income tax, and one-third of the corporation income tax and all of the bank income tax are distributed to local districts. In Wisconsin the surtax is used for special State expenditures, and also the temporary increase in the normal rates. Sixty per cent of the regular normal tax is distributed to local divisions. In the other states the proceeds are all kept for general state purposes.

REVENUE FROM STATE INCOME TAXES

(in thousands of dollars)

State	Amount from Personal Income	Amount from Corporation Income	Amount for State Purposes	Amount for Local Purposes	Fiscal Year Ending
Ark.....	\$ 87	\$ 100	\$ 187	—	Dec. 31, 1931
Cal.....	—	4,627	4,627	—	June 30, 1932
Conn.....	—	1,439	1,439	—	June 30, 1932
Del.....	1,924	—	1,924	—	June 30, 1931
Ga.....	690 (a)	692 (a)	1,382	—	Dec. 31, 1931
Idaho.....	38	61	99	—	Sept. 30, 1932
Mass.....	21,926	3,180	1,111	24,003	Nov. 30, 1931
Miss.....	240	433	673	—	Sept. 30, 1931
Mo.....	2,009	1,411	3,420	—	Dec. 31, 1931
Mont.....	—	168	168	—	June 30, 1931
N. H.....	638	—	10 (b)	628 (b)	Dec. 31, 1931
N. Y.....	30,859	45,994	46,665	30,188	June 30, 1932
N. C.....	1,384	5,769	7,153	—	June 30, 1932
N. D.....	112	105	217	—	June 30, 1932
Okla.....	654	283	937	—	June 30, 1932
Ore.....	1,320	401	1,721	—	Dec. 31, 1931
S. C.....	364	1,362	1,726	—	Dec. 31, 1931
Tenn.....	689	—	689	—	Dec. 31, 1931
Utah.....	248	—	248	—	June 30, 1932
Va.....	1,251	1,583	2,836	—	June 30, 1932
Vt.....	(c)	—	(c)	—	June 30, 1932
Wis.....	9,864 (a)	7,395 (a)	7,815	9,444	June 30, 1932

(a) Division between personal and corporation income tax estimated.

(b) Division between state and local receipts estimated.

(c) No report has been obtained.

LAND AND PROPERTY TAXES

BY JENS P. JENSEN

PROFESSOR, UNIVERSITY OF KANSAS

PROPERTY LEVY DECLINE | which has been going on for many
The increase in property taxes | years came definitely to a stop in

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1929. As far as farm real estate is concerned this decline in taxes actually paid is pointed out by the U. S. Department of Agriculture in reports on farm taxation. The decrease, in dollars, is greater still for the taxes in process of being collected and being levied. But reduction is difficult, partly because of fixed debt service requirements and the relief measures that cannot be avoided. Thus in New Jersey the aggregate budget requirements of all municipalities of the state show very little change even when the special relief measures are omitted. In Virginia a reduction in the property tax levies of 1932 to the amount of \$3,500,000 is expected, chiefly in the counties whose levy has decreased from \$2.31 to \$1.86 per \$100, occasioned primarily by the transfer of the highway costs to the state in all but four of the counties. The Colorado property levy for all purposes was reduced 8.75%. The Oregon levy payable in 1932 was decreased 14.4%. But in some places the reduced valuation has necessitated an increase in the tax rate, as in Nebraska, where the state rate had to be raised from 2.04 to 2.37 mills on the dollar. The Oregon State levy is reported abandoned for the first time. The revenue from the New York mortgage registration tax declined, for the fourth consecutive year, from \$5,837,072 in 1931 to \$3,902,150 in 1932. The real estate mortgages are becoming fewer and smaller.

ASSESSED VALUATION

Reduced income from property and the difficulty of reducing property taxes have seriously affected the actual market value of property; and this effect is also seen in the assessed valuation, or will be seen as reassessments are made. The annual increase in the assessed valuation of Connecticut came to a halt in 1932. The total assessed valuation declined 9%; that of California, about 14%. It is interesting to note that the assessed valuation does not decline uniformly for all kinds of property. Thus in California, land declined

13.7%, building, 7.6%, tangible personalty 14.76% and intangibles, 38.9%.

It is impossible to escape the conclusion that the assessed valuation is pegged in many taxing districts and states. It is also obvious that the assessing authorities are not reducing the assessed valuations of all kinds of property to the same degree, on the basis of market value. Thus in Oklahoma, although the total valuation was reduced, the value of the property of centrally assessed property was increased \$64,000,000. Missouri presents a striking case, not only of this tendency to peg certain valuations, but also of the improper behaviour of *ex officio* boards of equalization, with which this state and Colorado are afflicted. Having first rejected a motion to reduce the valuation of railroads 10%, the board in session entertained and approved a motion to raise the valuation of railroad property 10%. On the other hand, several states made appreciable reductions in their centrally assessed property, namely Washington, about 15%; Nebraska, about 13%; and California (for a possible emergency state levy), 13%.

DELINQUENCY

The hard times have made it difficult or impossible for many property owners to pay their taxes, and delinquency has become the most potent factor in the reduction of the yield of property taxes. Perhaps the average state percentage of delinquency may be estimated to vary from 5% to 30% of the levy, but unfortunately there are no accurate data showing actual amounts delinquent. Within each state the extent of delinquency varies greatly. In Minnesota it is reported as ranging from 1% to 66% of the levy among the counties, and among the subdivisions the variations are still greater. The delinquency is greatest, of course, in the submarginal regions, and the delinquent property consists mostly of cut-over timber land, vacant residential lots or undeveloped or decadent tracts. In New Mexico, of the taxes levied, less

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than 75% were paid when due. The delinquency in Oregon rose from 15.75% in 1931 to 29.57% in 1932. In New Jersey the corresponding figures were 27.3% and 30.4%. The Ohio state auditor reported \$100,000,000 of real and personal property delinquent. Much of these delinquencies is of course paid before the delinquent property can be advertised and offered for sale for taxes. But much of the delinquent property will revert to the country or to the state, and a new problem has arisen of what to do with this new domain. In the States of Michigan, Wisconsin, Minnesota, and South Dakota 16,000,000 acres, or 12% of the total area, has already passed into public ownership, and probably more than twice that area is already delinquent.

COLLECTION AND RELIEF

Called upon to deal with this situation, the legislatures in special session have acted variously. In 1931 the Texas legislature staged a house cleaning by providing for the remission of all interest and penalties accrued since 1836, and not subject to final judgment, provided these taxes were paid prior to Feb. 1, 1932. But this law was too inclusive and was replaced by another, limiting the application to *ad valorem* taxes, exclusive of town and city taxes, and extended the time for payment to Dec. 1, 1932. The act of 1931, and presumably the act of 1932, was upheld by the state supreme court, not on the ground that the legislature had power to remit taxes in a public calamity, for the court did not hold the depression a public calamity, but on the ground that the constitutional prohibition, (Art. 3, section 56), against remitting penalties by special law implied the right to remit them by general law, and for this purpose interest was regarded as penalty (45 S. W. 2, 130). In Ohio the recommendations of the governor's Committee on Tax Delinquency and Mortgage Foreclosure await action of the legislature. Meanwhile the state supreme court (179 N. E. 837) has held that the state tax commission

may not remit interest, though it may remit penalties, these not being alike. A 1932 Michigan law postpones the sale of delinquent land one year after May 1, 1932, provided one-half of the tax is paid before that date. In Louisiana the sale of land for taxes was likewise suspended. The Utah supreme court has held partial payment permissible, but the land may still be sold for the unpaid part (Tax Commission v. Evans). In Mexico the judicial department may not extend the time for payment of taxes fixed by the legislature. In West Virginia the governor vetoed a bill which would have eliminated interest, penalties and costs on 1931 delinquencies, upon payment, and the supreme court has held that that part of a 1931 act permitting prepayment in installment, and a discount of 2½% unconstitutional. Permission to prepay has been given in Massachusetts in order to put cities in funds earlier; also in Illinois, New Jersey, and Alabama, but in the latter state the attorney general has advised that the installment provision is invalid because of impossibility of performance. In Illinois the supreme court (179 N. E. 120) has held valid the Cook County levies of 1928 and 1929, and the county board has provided for a schedule of payment until the regular procedure is reached.

ADMINISTRATION

In Maine the State Board of Assessors has been abolished, and in its place is provided a Bureau of Taxation in charge of one state assessor and two commissioners serving on call. Research commissions have reported in Mississippi, Alabama, and Iowa. Special recess legislative committees have been authorized in Louisiana, Massachusetts, Texas and Virginia, and the special commission in New York has been continued. In New Jersey the state board of taxes and assessment was abolished in 1931, and its powers and duties divided between the state tax commissioner, who assumed the assessing and supervisory functions, and the board of tax appeals which exercises

appellate powers only. There is no state board of equalization. Florida in 1931 abolished the state equalizer of taxes, and no official provision has been made for his duties except in so far as they have been assumed by the state comptroller. In Nebraska the supreme court has set aside an order of the state board of equalization to reduce the valuation of pipe line property. It was argued by the board that the attorney general had no authority to appeal from this action in behalf of the counties and county assessors making the original assessment. The special session of the Indiana legislature has provided that the latest valuation of the public service commission for rate-making purposes shall be *prima facie* evidence of value for taxation purposes. Illinois at last provided for a single assessor of Cook County who is *ex officio* member of the board of review.

TAX LIMITATIONS

The hardships involved in tax payment have inevitably produced a crop of tax restrictions. The Michigan electors approved a constitutional amendment limiting the aggregate tax rate on property to 15 mills on the dollar. A similar measure failed in Kansas. An amendment in Washington was carried, prescribing a 40-mill limit. The special session of West Virginia legislature proposed, and the electorate adopted, an unusual combination of tax limitation and classification. The limit on intangibles and farm personality is set at 50c; on farms and homes, at \$1.00; other property outside of cities, \$1.50; and other property within cities, \$2.00 per \$100 assessed valuation. The same session also enacted a restriction of the taxes levied in 1932 to 85% of those levied in 1931, which statute is being contested. The Indiana legislature in special session provided for a limit of 15 mills on the dollar of assessed valuation. All of these limitations provide for exceptions in some measure for debt service requirements, and for additional levies by popular vote.

INTANGIBLES

The proposed constitutional amendment of Georgia to classify intangible property was defeated. The classification of Ohio has been upheld, except for the temporary provision for the distribution of the yield on intangible property, which is now in litigation. The classification of money and credits, in the form of a complete exemption of such property under the amendment of 1930, has been upheld in Washington (2 Pac. 2,653). The Oklahoma supreme court has held (11 Pac. 2, 1073) that a tax certificate is not property for the purpose of taxation, reversing the district court. In Virginia a conveyance in trust of securities to a foreign corporation, with income payable to children of creator does not provide a basis for taxation (155 S. E. 985). And in Virginia shares of stock bought on margin are taxable on the full value, and not merely on the equity of the purchaser (155 S. E. 823). In Indiana intangible property of a coal mining corporation, with principal office in Chicago, and all of whose business, except the digging and shipping of coal, is situated and taxable in Chicago, and not in Indiana (176 N. E. 11).

ASSESSMENT

A subsidiary of the Ford Motor Company generating power for the sole use of the parent company is not furnishing public service, and is assessable locally and not by the state tax commission (240 N. W. 418). Levee taxes assessed against a railroad within the levee district on a mileage basis held in lieu of all other levee taxes, including equal and uniform *ad valorem* tax against the property (132 So. 597). The unit rule of assessment is not dependent upon physical connection. In Montana it is held (7 Pac. 2, 551) that oceanic cables belonging to the Western Union Telegraph Company should be apportioned pro rata for assessment and taxation in Montana.

EXEMPTION

In California the voters defeated an amendment to exempt the prop-

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erty of veterans to the amount of \$1,000. They did, however, exempt certain vessels, except for state taxes, until 1955. In Michigan the voters rejected an amendment which would have exempted homesteads to the value of \$3,000, a very drastic measure. It appears that the voters

have exercised greater discretion in exempting property from taxation than they have been doing for many years. Michigan electors also restricted to taxpayers the right to vote upon questions of taxes and bond issues.

CORPORATION AND BANK TAXES

BY JENS P. JENSEN

PROFESSOR, UNIVERSITY OF KANSAS

CORPORATION TAXATION

Revenue Decline.—While it is impossible to present complete statistical data showing that the revenue from corporation taxation has declined markedly, the reports in general demonstrate this decline. The revenue from the California 4% income (excise) tax on corporation income of 1931 was 21.5% less than in the previous year. The Connecticut 2% tax yield fell about 44.6%. The Rhode Island corporate excess and the 4-mill tax thereon fell 11.7%. In Minnesota revenue from the gross earnings tax declined by 21.3%, and in the case of railroads, the decline is both greater and cumulative; thus the yield for the year 1931 was 29.3% less than in 1930, and 40.6% less than in 1929.

Franchise Taxes.—Louisiana imposed a franchise tax of \$1 per \$1,000 of capital stock, surplus and undivided profits, with a minimum of \$10. It appears that the long litigation in the case of *St. Louis and Southwestern Railway Co. v. Stratton* has at last come to an end. The amount involved was the difference between \$130.25 and \$1,000. The question was the validity of a provision for a minimum tax based upon the entire stock, whereas otherwise the tax is based upon the allocated fraction in case of foreign corporations. Because of procedural difficulties the case made two trips to the U. S. Supreme Court (282 U. S. 10 and 52 Sup. Ct. 222), and finally ended in the Illinois supreme court

with the decision that the minimum provision was invalid. That provision of the Texas 1930 law which included the bonded indebtedness has been held not invalid in the case of *Southern Realty Corporation* decided in the Federal district court. The Alabama supreme court has held that imports stored in the original package in a warehouse of the state, awaiting sale in the state or elsewhere, constitutes capital employed in the state, and may be included in the measure of the state 2% tax. In this case (142 So. 87) the U. S. Supreme Court has assumed probable jurisdiction. In another case, *State v. National Cash Credit Association*, the Alabama court has held that a corporation organizing a subsidiary to do business in the state, itself not doing such business, and the subsidiary paying the excise tax, is not liable to pay the corporation franchise tax on money loaned to the subsidiary.

No Par Value.—The Florida supreme court has held that the capital stock tax is not invalid because the measure of the tax is different for corporations having no par stock, the no par shares being presumed to have a value of \$100 unless value is shown (*Gray v. Central Lumber Co.*). In 1931 the California legislature, in codifying the law, neglected to provide a method for computing the filing fee for no par stock corporations, and until this defect is remedied the articles of these corporations must be filed without payment

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of fee. In Kentucky a corporation amending its articles to change its capital stock from shares of \$10 each to no par stock, must pay an organization tax, and the shares must be valued at \$100 each (Lewis v. Clawson Hosiery Co.).

Interstate Business.—It was argued before the Columbus Conference of the National Tax Association that the states should be empowered to tax the interstate business and property of corporations in the same way as they may tax their interstate business and property, and the proposal has been embodied in a bill of the 72nd Congress. The U. S. Supreme Court has held that a privilege tax is invalid on interstate pipe lines, when measured by the size and number of miles of pipe line owned and operated in Mississippi, even though the lines are tapped in two places in Mississippi for use in the state of a small part of the flow. The tapping and measuring are incidental to the interstate movement, and the intrastate consumption is a small part of the whole (State Tax Commission v. Interstate Natural Gas Co.).

Exemptions.—Are the regional agricultural credit corporations organized in Delaware by the Reconstruction Finance Corporation subject to the corporation taxes of the states? The attorney general of California has ruled yes, and a test will have to be had, although similar opinions in other states are in favor of exemptions for this and similar Federal subsidiaries. The New Jersey Board of Tax Appeals has ruled that a storage company is not a manufacturing enterprise by reason of refrigeration service furnished, but production of ice for sale is manufacturing, and in so far as its business is that of making and selling ice it is entitled to a *pro rata* exemption, unless it is entirely exempt by reason of having 50% of its capital so employed.

Gross Receipts and Power Taxes.—The Florida supreme court has ruled that cities which furnish electricity to private persons are not engaged in a governmental function but are acting within their proprietary cor-

porate capacity, and are subject to the gross receipts tax of 1¼% (City of Lakeland v. Amos). This tax is held an excise tax and not an income tax, and therefore not unconstitutional. In Pennsylvania the gross receipts tax on electric utilities applies not only to the sale of power but also to the sale of appliances designed to be operated by electricity, but does not apply to sales to the Federal Government nor to other utility companies which themselves pay this tax. Double taxation, as contemplated in the latter restriction, is not unconstitutional but must be clearly required by the law (Commonwealth v. Philadelphia Electric Co.).

Louisiana has imposed a tax of 2% of the gross receipts from the sale of electric power. The U. S. Supreme Court has upheld the decision of the Idaho supreme court that the state may tax the production of electric current even though there are exemptions, and a part of the current is exported. The production of current is a localizable process and separate from the transmission. (See 54 Fed. 2, 803). For a similar reason the South Carolina tax on the sale, supplementing the production tax, was upheld (52 Fed. 2, 515) even though a part of the current had been imported. In two other cases (Lexington Power Co. and Broad River Co. v. State Tax Commission) the U. S. Supreme Court has assumed probable jurisdiction on the allegation that plaintiff is an agency of the Federal Government, by virtue of being a licensee of the Federal Power Commission.

Motor Carriers.—In Wisconsin the 1931 exemption of motor vehicles from *ad valorem* taxation, in lieu of increased gasoline taxes, does not apply, the state supreme court says, to vehicles operated as a part of a system of a railway and interurban company (242 N. W. 312). The same court has also sustained the ton-mileage tax on all mileage in Wisconsin, even though a part thereof is made in interstate trips, so long as it is not discriminatory. In two cases (53 Fed. 2, 471 and 55 Fed. 2, 347),

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the Federal courts have upheld the Kansas mileage tax on motor carriers. The Arkansas supreme court has upheld a privilege tax on interstate commerce trucks, not common carriers, if the proceeds are used on the roads. The classification of the Ohio tax on motor carriers is not invalid where the rate is $1\frac{1}{2}\text{¢}$ per mile for contract carriers and only $2\frac{1}{5}$ of 1% for common carriers, and the tax on trucks is not invalid because the basis for all trucks is maximum capacity. On the other hand, the South Carolina tax on carriers has been enjoined as for trucks engaged in contract hauling. The contract carriers also are not subject to pay the fees prescribed to cover the cost of the South Carolina Transport Division under the 1931 law (56 Fed. 2, 1058).

Insurance.—Under the new law of Louisiana the gross premium rates will be 1.7% for life, 1.75% for casualty, and 2% for fire companies; the companies will be exempt from income and corporate franchise taxes. A new Virginia law imposes an additional tax of $\frac{1}{2}$ of 1% on fire insurance premiums to provide a fund for disabled firemen and pensions for dependents of disabled firemen. The Pennsylvania court's decision (158 Atl. 262) that a gross premium tax of 8 mills on life insurance is not unconstitutional because it exempts those operating on the fraternal plan has been upheld by the U. S. Supreme Court. The Kentucky court of appeals holds that the municipalities may impose occupation taxes on domestic life insurance companies despite the provision of the 1926 law imposing a state tax on such companies "in lieu of all other taxes by the state or any county, town, city or other taxing district" (*Commonwealth Life Insurance Co. v. City of Baducah*). The South Carolina supreme court holds that the 1931 additional tax on "total premiums" applies without deduction for return premiums and reinsurance premiums (*King v. Aetna Insurance Co.*). An Oregon statute limiting the number of agents of a company in a state, and fixing an annual license of \$500

on each agent in excess of that number, is invalid as being either discriminatory or unreasonably restrictive (49 Fed. 2, 274). In Illinois a tax on net receipts of an incorporated foreign insurance company, and not on its competitors is not invalid, so long as it applies uniformly to the class affected (175 N. E. 431).

BANK TAXES

National Bank Taxation.—The Association of States for the Taxation of National Banks, at a meeting held in conjunction with the Columbus Conference of the National Tax Association, abrogated the agreement with the Committee of the American Bankers Association on the Steagall bill, which would have provided for a share tax taking a percentage of the profits of the banks not greater than the percentage taken in taxes from other business corporations. States employing this tax would have been required to compile information showing what this percentage would be. The Minnesota state tax commission had already compiled this information for Minnesota. The Association of States is now looking toward the adoption of a measure such as the Norbeck bill, which would provide that "the taxes imposed shall not be at a greater rate than is assessed upon other moneyed capital used or employed in the business of banking." By such other moneyed capital is meant the shares of state banks. Except for this restriction the states could tax national banks according to their choice.

Income Taxation.—On the constitutionality of the California 4% excise tax on banks the U. S. Supreme Court has ruled (52 Sup. Ct. 424 affirming 298 Pac. 489) that interest from tax exempt state bonds may be included in the net income measuring the tax. The supreme court of Oklahoma has held (8 Pac. 2, 732) that national banks are not required to pay taxes on their shares as property. The *ad valorem* tax must be considered as having been abolished by the new income tax law, although the repeal is by implication, since

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the national banks can be required to pay only one of these taxes.

Ad Valorem Taxation.—In Alabama the state supreme court has decided (142 So. 552) that the shares of state banks but not those of national banks may be subject to the *ad valorem* tax, although national bank shares may not be so taxed. Section 217 of the state constitution does not require parity of state and national bank taxation. The U. S. Supreme Court has ruled (52 Sup. Ct. 133) that the practice provided for in the Iowa law of 1929 of making the local assessor or county auditor determine what intangibles are in

competition with the business of national banks, cannot be used to avoid the requirement of Section 5219 that national bank shares must not be taxed at a rate higher than that assessed on competing moneyed capital. Under a court decision both state and national banks in Montana must be taxed on a basis of 30% rather than 7% of the valuation. It is doubtful whether this decision will long control, so long as there is the probability of finding among money and credits, taxable on a 7% valuation, large items of competing moneyed capital.

INHERITANCE TAXES

BY ALZADA COMSTOCK

PROFESSOR, MOUNT HOLYOKE COLLEGE

FEDERAL ESTATE TAX

Sharp Increase.—The year 1932 was an eventful one in the history of Federal taxation of estates of decedents. For six years the rates of taxation have been moderate and the national revenue low, but as a part of the Revenue Act signed on June 6, 1932, the rates of the Federal estate tax were sharply increased. Early in the winter of 1931-32 it became apparent that the decline in Federal revenue which was one of the results of the economic depression would compel Congress to increase taxes all along the line if the budget was to be balanced. President Hoover's budget message, presented to Congress Dec. 9, 1931, called for "an increase in taxation for a definite period and upon the general plan of taxation which existed under the Revenue Act of 1924 with such changes as might be appropriate in the light of altered conditions." This recommendation, if followed, would have restored a 40-per-cent maximum estate tax rate instead of the 20-per-cent maximum then existing.

Rate Revision.—In a statement on the national finances before the House Ways and Means Committee

Jan. 13, 1932, Secretary of the Treasury Mellon referred to the fact that he had frequently expressed his opposition in principle to the levying of excessive taxes on the estates of decedents. He urged, nevertheless, that in the existing emergency the taxation of states should be so increased as to contribute additional revenue. Mr. Mellon recommended that the existing rates and exemptions be revised to correspond to those effective under the Revenue Act of 1921. That act had provided for the taxation of net estates at rates graduated from 1 per cent on the first \$50,000 up to 25 per cent on amounts in excess of \$10,000,000. This new scale of rates would, he estimated, result in an increase of \$22,000,000 in the national revenue in 1933.

Revenue Bill Provisions.—The position of the national budget grew rapidly worse during the late winter and early spring of 1932, and it soon became apparent that the tax measures under consideration must be revised upward. The revenue bill introduced in the House of Representatives, March 7, doubled the estate tax rates in every bracket and did

AUTOMOBILE TAXES

not allow the 80-percent credit previously granted with respect to state inheritance taxes to apply to the additional Federal tax imposed. In the Revenue Act in the form in which it became law on June 6, 1932, the estate tax provisions went beyond even the March proposals in the height of the rates imposed. This act superimposed on the existing structure additional taxes which produced a maximum estate tax rate of 45 per cent on net estates of more than \$10,000,000. The \$100,000 exemption granted to the estates of residents under the act of 1926 was reduced to \$50,000. The 80-percent credit for taxes paid to the states was retained for the former tax rates only, and was not made applicable to the additional rates.

Comparisons.—The effect of the 1932 rates as compared with those of the Revenue Act of 1928 has been presented as follows: (Franklin W. Ganse in *Barron's*, June 13, 1932):

<i>Value of Net Estate</i>	<i>1928 Federal Estate Tax</i>	<i>1932 Federal Estate Tax</i>
\$ 100,000	\$ 500	\$ 5,000
250,000	4,500	19,500
500,000	15,000	49,000
1,000,000	45,500	126,000
5,000,000	497,000	1,166,000
10,000,000	1,334,500	3,116,000
20,000,000	3,334,500	7,616,000

Effects.—The same authority has concluded that the effect of the partial 80-percent credit provision will be as follows: In very large estates, the credit arrangement will in general absorb the state inheritance taxes and the total inheritance taxes paid will be equal to the Federal estate tax imposed by the Revenue Act of 1932, but in the smaller estates in those states which impose fairly large inheritance taxes the credit of 80 per cent will not in most

cases take care of the entire amount of the state inheritance tax.

THE GIFT TAX

In connection with the estate tax a gift tax was included in the Revenue Act of June 6, 1932. The tax rate begins at 1 per cent on gifts not in excess of \$10,000 and rises to 33⅓ per cent on gifts in excess of \$10,000,000. Gifts to the value of \$5000 to any one person during the calendar year and donations to charitable, religious, and similar organizations are exempt. There is also a specific exemption of \$50,000.

STATE INHERITANCE TAXATION

In the field of state taxation of inheritances a significant event occurred early in the year, when the United States Supreme Court handed down a decision in the case of the First National Bank of Boston, executor of the estate of Edward H. Haskell, deceased, *v.* the State of Maine. The following excerpt from the decision, which was written by Justice Sutherland, indicates that multiple inheritance taxation of investment securities has come to an end: "A transfer from the dead to the living of any specific property is an event single in character and is effected under the laws, and occurs within the limits, of a particular state; and it is unreasonable, and incompatible with a sound construction of the due process of law clause of the Fourteenth Amendment, to hold that jurisdiction to tax that event may be distributed among a number of states."

This decision came as a climax to the conclusion of reciprocity agreements among the majority of the states which had imposed inheritance taxes on the property of non-resident decedents.

AUTOMOBILE TAXES

BY BEULAH BAILEY

LIBRARIAN, NEW YORK STATE DEPARTMENT OF TAXATION AND FINANCE

TAX YIELD

The expenditures by State Highway Departments in the various states amounted in 1931 to nearly

VII. PUBLIC FINANCE AND TAXATION

\$1,000,000,000. Of this amount nearly \$700,000,000 came from taxes on motor vehicles and motor fuels. In 1931 the total yield from the gasoline tax was \$537,589,717 as against \$494,683,410 in 1930, one tax which did not show a decrease. The receipts from motor vehicle taxes were \$344,337,654 in 1931, and \$355,704,860 in 1930.

COMMON CARRIERS

Kentucky.—The question of the regulation and taxation of common carriers predominated in motor vehicle legislation. Kentucky placed their regulation under the Tax Commission and levied a new tax. The tax on common passenger carriers operating over a regular route under a certificate is a mileage tax, the rate ranging from $\frac{1}{4}$ to 3 cents per mile based upon seating capacity, plus 50 cents per hundred weight, plus a flat tax ranging from \$3 per seat to \$15 per seat, again based upon seating capacity. The tax on common carrier trucks is the regular license fee, rates ranging from \$20 to \$300 plus a mileage tax, rates ranging from $\frac{1}{2}$ cent per mile to $1\frac{1}{2}$ cent per mile, both the mileage tax and the regular license fee based upon truck weight.

Louisiana places contract and common carrier trucks and buses in the same class for taxation purposes. Formerly contract carriers paid the same license rates as privately owned motor vehicles. The weight tax has been reduced on property carriers from a range of \$12.50—\$150 plus, to \$6—\$50. Formerly there were only three brackets in the rate per passenger for buses, \$2, \$5 and \$7. Under the 1932 law, the start is \$1.50 per passenger for buses carrying 1-7 passengers and goes up through six gradations to \$7.50 per passenger over 48.

Mississippi has a three-fold system of taxing common carriers. There is the Highway Privilege Tax, the Flat Privilege Tax and the Mileage Tax. The rates of the Highway Privilege Tax have been increased on trucks weighing less than $2\frac{1}{2}$ tons up from a range of \$7.50-\$75,

to \$15-\$72. Buses have been increased from 10 cents per h.p. plus 40 cents per hundred weight to 15 cents per horse power plus 50 cents per hundred weight. The Flat Privilege tax on trailers was increased from a range of \$15-\$80 to \$60-\$300. A new Flat Rate Tax is levied on buses, rate \$30-\$180 depending on carrying capacity of bus. The Mileage Tax rate for buses ranges from $\frac{1}{4}$ cent per mile to $1\frac{1}{2}$ cent per mile depending on the carrying capacity. This tax is not applicable until the bus had travelled 12,000 miles. This means that each bus must be equipped with a speedometer. The Mileage Tax on trucks ranges from 5-30 mills per mile and on trailers from $1\frac{1}{2}$ -25 mills per mile. The sales tax on the gross income of buses has been increased from $\frac{1}{2}$ of 1 per cent to 2 per cent.

Virginia.—The motor vehicle code of Virginia has been completely rewritten. The localities can no longer levy a local license fee on common carriers. A state tax of \$2.50 per \$100 of assessed valuation in accordance with miles traveled is levied by the state and the revenue goes to the locality. The fees on domestic common carriers are 70 cents per hundred weight plus 2 per cent of gross receipts. This is for intrastate business. For interstate business it is 2 per cent on that portion of gross receipts derived from business within the state. Foreign common carriers operating four or more times a month in the state over designated routes are liable to the same common carrier fees as domestic. The fees on motor trucks have been increased in the brackets of $2\frac{1}{2}$ -5 ton capacity from a range of \$40-\$200 to \$50-\$250. New brackets continue from 5 ton through 10 ton. The fee for the latter is \$1,150.

Registration Fees.—The registration fee of trucks, trailers, tractors and buses was temporarily increased in New York State 65 per cent. The permanent registration fee of trailers increased from \$4 per ton to \$8. Drivers schools must be licensed in New York. Alabama this year changed the basis of the registration

AUTOMOBILE TAXES

fee from horse power to weight. The range of the fee is from \$11.25 on cars weighing 2,500 lbs. or less to \$30.00 for those weighing 4,000 lbs. or more.

GASOLINE TAX

Rates.—Four States increased the gasoline tax. Alabama from 5 cents to 6 cents, Mississippi from 5½ to 6 cents, New York 2 cents to 3 cents, and Tennessee from 6 cents to 7 cents. A Federal tax of 1 cent was levied. In both Maine and North Dakota the voters rejected a one cent increase and in Colorado they rejected a one cent decrease.

Distribution Requirements.—Alabama requires the distributors of gasoline to be both bonded and licensed. The license is \$5 and the bond \$1,000 minimum, \$25,000 max-

imum. This year Virginia requires a bond for dealers. The minimum is \$5,000 and the maximum \$20,000. New York levies a \$2.00 license tax on all retail dealers. Wisconsin includes gasoline service stations in the chain store tax base.

Revenue Diversion.—The tendency this year has been to divert some of the motor vehicle and gasoline tax monies from roads. Illinois permits the diverting of the gasoline monies. In Ohio the localities' share of both the gasoline and motor vehicle monies may go for poor relief. In Alabama education may receive a share of both the gasoline money. In Michigan part which formerly went to the localities now goes into the general fund and in New York the yield of the 1 cent increase is for the general fund.

STATE GASOLINE TAX RATES

(As of December 31, 1932)

State	Cents	State	Cents
Alabama	6	Nevada	4
Arizona	5	New Hampshire	4
Arkansas	6	New Jersey	3
Colorado	4	New Mexico	5
Connecticut	2	New York	3
Delaware	3	North Carolina	6
Dist. Columbia	2	North Dakota	4
Florida	7	Ohio	4
Georgia	6	Oklahoma	5
Idaho	5	Oregon	4
Illinois	3	Pennsylvania	3
Indiana	4	Rhode Island	2
Iowa	3	South Carolina	6
Kansas	3	South Dakota	4
Kentucky	5	Tennessee	7
Louisiana	5	Texas	4
Maine	4	Utah	4
Maryland	4	Vermont	4
Michigan	3	Virginia	5
Minnesota	3	Washington	5
Mississippi	6	West Virginia	4
Missouri	2	Wisconsin	4
Montana	5	Wyoming	4
Nebraska	4		

VII. PUBLIC FINANCE AND TAXATION

DIVISION VII

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

NATIONAL TAX ASSOCIATION, 195 Broadway, New York City.	NORTH AMERICAN GASOLINE TAX CONFERENCE, Indianapolis, Ind.
NEW ENGLAND STATE TAX OFFICIALS ASSOCIATION, State House, Boston, Mass.	WESTERN STATES TAXPAYERS ASSOCIA- TION, Denver, Colo.

DIVISION VIII

PUBLIC RESOURCES AND UTILITIES

FEDERAL SURVEYS AND MAPS

By JOSEPH H. WHEAT

SECRETARY, BOARD OF SURVEYS AND MAPS OF THE FEDERAL GOVERNMENT

TRIANGULATION AND LEVELING*

The plan for the standard topographic mapping of the United States calls for a complete network of triangulation based on the standard (North) American datum. The geographic position of Meade's Ranch, Nebraska, is the accepted datum for the North American continent, as the United States, Canada, and Mexico have adopted it and have made their position adjustments to conform to it. The plan also calls for spirit level elevations based on mean sea level. Horizontal and vertical control work of this character accomplished during the past year is given in the summary of the year's work.

AERIAL PHOTOGRAPHY

Utility of Photographs.—The Geological Survey, the Coast and Geodetic Survey, the Corps of Engineers, the Hydrographic Office, and the Forest Service are particularly interested in the development of cameras and methods to obtain greater accuracy in photographs and to facilitate their use on map work. Aerial photographs are especially valuable in standard mapping, being used by the Geological Survey on this work to a large extent in compiling planimetric bases for use in the field. They are also used as an aid in making military maps of the several types required for defense, the training of troops,

the practice of artillery firing, and other military activities, as well as for use in the charting of coast lines and stretches of coastal country difficult and tedious to survey by ground methods. The Air Services of the Army and Navy supply aerial photographs for use by Government agencies in mapping, but some of the work of this kind has been contracted for by commercial firms.

Types of Cameras in Photographic Mapping.—The photographs are made with especially designed roll-film cameras. These are of two kinds, single-lens and multiple-lens. Single-lens cameras are used in connection with mapping large cities and areas of comparatively flat country. The multiple-lens cameras employed at present in photographic mapping have many advantages owing to the large area photographed at each exposure. These advantages are so great that they more than offset the slight indistinctness shown at the outer edges of some of the photographs. The multiple-lens cameras are constructed with either three, four or five lenses each. The five-lens camera photographs have been used by the Coast and Geodetic Survey in the construction of navigational charts and by the Geological Survey in topographic mapping. They have the distinct advantage of requiring less ground control than any of the other types.

Stereoscopic Mapping.—Topographic mapping by the stereo-photogrammetric method, using the aero-

*For the organization of the mapping and surveying services of the Federal Government, see THE AMERICAN YEAR BOOK for 1931.

VIII. PUBLIC RESOURCES AND UTILITIES

cartograph in constructing maps from aerial photographs, was continued by the Geological Survey, the only mapping agency, either Governmental or commercial, making practical use of the method at the present time.

CURRENT SURVEYS

Geological Survey.—In the fiscal year ended June 30, 1932, topographic surveys were executed in 27 of the 48 states. Topographic maps of new areas covered 18,656 square miles; 5,451 square miles were resurveyed; maps covering 1,786 square miles were revised; line maps, in preparation for topographic mapping, were compiled from aerial photographs for an area of 3,191 square miles; and 199 linear miles of river surveys were accomplished. To control these topographic surveys, 233 triangulation stations were occupied; 7,684 linear miles of spirit levels and 5,676 linear miles of transit and tape traverse were run; and the necessary computation and adjustment of the field survey notes were accomplished. Aerial photographs covering approximately 29,500 square miles were furnished by the Air Corps, United States Army, and by commercial organizations under contract for use in topographic mapping. The inking, inspection, and editing of maps produced in the field were accomplished in preparation for their reproduction. A base map of Georgia was completed and one of Michigan was nearly completed. Maps were prepared for the Office of Indian Affairs and map projections were constructed for the Bureau of Chemistry and Soils of the Department of Agriculture. A base map of the Appalachian Valley, Virginia, was compiled in preparation for geologic mapping. Maps were also compiled and other illustrations were assembled for publication in the *George Washington Atlas*, and a number of charts were prepared for Congressional use. The year's increment to topographic mapping amounted to six-tenths of 1 per cent of the area of the United States, bringing the total percentage of the area mapped on June 30, 1932, to 45.2 per cent of the entire area.

Coast and Geodetic Survey.—The Coast and Geodetic Survey completed a total of 61,485 square miles of hydrographic surveys and a total of 1,051 square miles of topographic surveys in the United States, Alaska, Hawaiian Islands, and the Philippines. An area of 59,100 square miles was covered by first-order triangulation and 5,945 miles of first-order and 1,555 miles of second-order levels were run. Triangulation of second and third order covered 3,330 square miles. Experimental surveys with the five-lens aerial camera were made by the Coast and Geodetic Survey in the vicinity of San Francisco. These surveys indicated that the highest graphic accuracy can be maintained in planimetry compiled from the five-lens photographs with less than half the ground control required for plane table surveys.

Hydrographic Office.—During the fiscal year ended June 30, 1932, hydrographic surveys were conducted by the survey vessels of the United States Navy in Cuba, Venezuela, Panama, and Costa Rica. This year marked the completion of the charting of the Cuban waters, a grand total of 23,430 square miles of area sounded and 2,350 nautical miles of coastline surveyed, of which 60 per cent was covered by aerial photography. The Hydrographic Office has published of the Island of Cuba one general chart, 21 coastal charts, and 56 plan charts. The Venezuelan area of the Gulf of Paria was completed this year by the U. S. S. *Hannibal*. This survey, covering a total water area of 1,600 square miles and 350 linear miles of coastline, all covered by aerial photographs, is in the process of compilation and will afford the navigator an accurate nautical chart of those important waters for the first time in history. In the Gulf of Panama a survey covering the Morro-Puerco-Cape Mala area (approximately 400 square miles) was completed. At the request of the Costa Rican government a survey was conducted of a portion of the Gulf of Nicoya. An aerial survey of that area, covering approximately 300 nautical miles of coastline, was

made. The main channel leading into Puntarenas was wire dragged to insure safer navigation. During the fiscal year ended June 30, 1932, 2,000 square miles were sounded and 350 nautical miles of coastline were covered by aerial photography.

Corps of Engineers.—During the fiscal year cooperative military map work by the U. S. Geological Survey was continued along the international border in Maine. The 29th Engineers (topographic) established 92 control monuments and completed 265 square miles of topographic mapping for the Fire Control map of the area adjacent to New York City. Field surveys were initiated for two tactical maps in the vicinity of Camp Knox, Ky., as well as a special military map of Camp Knox, scale 1:5,000. A special edition of the map of Fort Ethan Allen, Vt., was prepared, and a training map of Des Moines, Ia., and vicinity was initiated, the field work, of which, was executed by the Geological Survey. Special maps were prepared of Camp Stephen D. Little, Fort McIntosh, and Fort Francis E. Warren, Tex. Aerial surveys were made of the following river valleys: Missouri River, Cumberland River, Beaver River, Pa., Shenango River, Pa., Allegheny River, Pa., Mahoning River, Pa., Wabash River, Sacramento River, San Joaquin River, and of possible routes for a canal across the State of Florida. Approximately 100 fifteen-minute quadrangle map sheets were published of the Alluvial Valley of the Mississippi. Hydrographic surveys were made during the year in the Mississippi River Valley, the Wabash River, and at practically all the larger and more important ports of the United States. Operations in the Hawaiian Department consisted of the surveying and placing of monuments for the boundaries of Government reservations in the Hawaiian Islands and maps of the following reservations were completed: Waimanalo, Red Hill, Schofield Barracks, Puu o Kapolei, Round Top, Fort Ruger, and Sugar Loaf. A general map, in four sheets, of the vicinity of Oahu was prepared for the Ha-

waiian maneuvers. The hydrographic survey of the shore line of the Island of Oahu was resumed during the fiscal year with the assistance of an officer from the U. S. Coast and Geodetic Survey. The shore lines and soundings have been completed for Moanalua Bay and Hanauma Bay, and work is in progress between Waimea Bay and Waialeale. The survey troops in the Philippine Department surveyed an area of 420 square miles. Twenty-five triangulation stations and 10 supplementary triangulation stations were established. Eight field sheets were plotted from aerial photographs.

Mississippi River Commission.—The Alluvial Valley of the lower Mississippi is about 30,000 square miles in area. It extends from Cape Girardeau, Mo., to the Gulf of Mexico, being about 600 miles long and 50 miles wide. Surveys of the Mississippi River and its Alluvial Valley have been carried on since 1882. In recent years the maps published have been more complete than the older maps. Maps have been published in colors, on scales of 1:250,000 and 1:500,000. Field work has been completed for quadrangle maps in five colors on a scale of 1:62,500 covering the entire area and publication is in progress. These maps are based on primary and secondary triangulation control. In addition to the maps published, accurate hydrographic and construction surveys have been made and are being made wherever flood control and navigation works are initiated. During the fiscal year 1932, in addition to the completion of the surveys for the map on the scale of 1:62,500, the low water (overbank) survey (made every ten years) of the lower Mississippi River was completed. A new survey was also made of the Atchafalaya River, an outlet of the Mississippi. Hydrographic surveys to determine the movement of the thalweg were made. All detailed surveys necessary for the flood control and navigation works under construction were made, and a number of surveys were made in connection with proposed flood control plans.

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Forest Service.—Topographic surveys have been executed by the Forest Service to the standard required by the Board of Surveys and Maps for mapping on a field scale of 1:96,000, on 1,017 square miles of the National Forests in Montana, Idaho, California, and Oregon. Drainage surveys were completed on 450 square miles of the Dixie Forest in Utah. Aerial photographs have been taken over 3,000 square miles of the forest areas in the Montana-Idaho forests from which it is intended to compile a drainage map.

General Land Office.—The Supervisor of Surveys reports an aggregate of original surveys under the rectangular system embracing 2,967,000 acres; in addition, resurveys to the extent of 1,165,800 acres were undertaken.

Bureau of Chemistry and Soils.—The soil surveys are generally based on data prepared by the Geological Survey and the Coast and Geodetic Survey, whenever available. Original surveys are made in a few areas each season. The total area of soil surveys made in 29 states aggregated 30,569 square miles.

STATE GEOLOGICAL SURVEYS

BY GEORGE C. BRANNER

STATE GEOLOGIST, ARKANSAS

GENERAL

As an aid to the development and conservation of their varied mineral resources, 40 states maintained active geological surveys as part of their governmental structure during 1932. The expenditures of these surveys during the fiscal year 1932-1933 was approximately \$1,051,292. This figure was increased by approximately \$1,043,050 by the Federal Survey and by State, county, and local organizations and individuals cooperating with State surveys. This made a total sum of \$2,094,342 subject wholly or largely to State control which was devoted to State mineral development and conservation. Approximately 95 full time geologists and 255 part time geologists and otherwise technically trained men were engaged in carrying on 409 survey projects. These included geologic, topographic, and soil surveys, stream gaging, and miscellaneous projects. Two hundred and ninety-eight technical reports and maps were published during the year.

BASIC GEOLOGY

Colorado, in cooperation with the U. S. Geological Survey, continued studies of the geology of the Jamestown area, Boulder County, the geol-

ogy of the Alma district; completed papers on the geology of Huerfano Park, the structural geology of Boulder County, the physiography of the Front Range, the structure and vein systems of the Arrastre Basin, and the geology of the Snowmass Mountain area.

Connecticut continued a study of the bedrock geology of western Connecticut.

Florida began publication of reports on the foraminifera of the Upper, Middle, and part of the Lower Miocene of Florida, and on the Miocene vertebrates of the State, and published a report on the Miocene pelecypods of the Choctawhatchee formation.

Georgia and Idaho.—Georgia continued mapping the crystalline area of the State. Idaho continued the geologic mapping of Latah County.

Illinois began studies of the petrology of the mineral constituents of coal, methods used to calculate "pure coal" B. t. u. values and ash-inorganic matter ratios, the petrology of Illinois clays, and the geology of the Streator quadrangle. Studies of the lithologic and botanical constituents of Illinois coals, Pennsylvanian stratigraphy and paleontology, paleobotany

STATE GEOLOGICAL SURVEYS

of the Pennsylvanian system and of the Pottsville stage, ostracods of the Chester series, the Paleozoic subsurface, the Pleistocene system, and the constitution of the Wisconsin drift sheets were continued. Papers on the effect of Paleozoic submergence on the great Mid-West, the inheritance of Illinois from the Ice age, the geologic history of southern Illinois, and typical rocks and minerals of Illinois were published.

Indiana carried on studies of the Devonian formations, the glacial epochs, and the stratigraphy of the Silurian and Devonian systems, and published a State geologic map and a geologic map of Switzerland County.

Iowa continued studies of the stratigraphy and paleontology of the Pennsylvanian system.

Kansas began studies of the stratigraphy of the Permian system; continued studies of the geology of Brown, Doniphan, and Barber counties, the stratigraphy of the Pennsylvanian system, Pennsylvanian bryozoans, the stratigraphy of the Cretaceous, the Dakota series, fusulinids of the Permian and Pennsylvanian systems, insoluble residue of the Siliceous lime; continued the geologic mapping of eastern and central Kansas for a new State geologic map; and completed studies and published reports on the geology of Wyandotte and Johnson, Riley and Geary, and Ness and Hodgeman counties.

Kentucky carried on a study of the insoluble residues from Ordovician deep drill cuttings and of Ordovician stratigraphy, and prepared a revision of Miller's "Geology of Kentucky."

Maine continued the preparation of a State geologic map in cooperation with the U. S. Geological Survey.

Maryland continued studies of the crystalline rocks of the Piedmont, Coastal Plain sediments, and the paleontology of the Mesozoic and Paleozoic; prepared a report on the Carboniferous system covering the results of 20 years investigations, and prepared a manuscript geologic map of the State.

Michigan continued studies of insoluble residues, continued the preparation of a geologic map of the State

showing hard rocks, and a geologic map of Schoolcraft County, and completed a report on the Pennsylvanian rocks, an economic geologic map of Alpena County, and a surface geologic map of Alger and Luce counties.

Minnesota and Missouri.—Minnesota issued a geologic map of the State. Missouri continued subsurface studies by the insoluble residue method, stratigraphic studies of the Canadian system in the Ozark region, geologic and chemical studies relative to ore-bearing solutions, and continued the geologic mapping of Shell Knob quadrangle.

Montana continued studies of the structure of Bitter Root Valley, the Paleozoic section of western Montana, the geology of Cooper's Lake quadrangle, and continued the preparation of a geologic map of Montana in cooperation with the U. S. Geological Survey.

Nebraska continued studies of the Pennsylvanian bryozoans and ostracods, Permian ostracods, revised the classification of the Pennsylvanian fusulinids, continued studies of the Pleistocene deposits, completed studies of the Permian formations of southeast Nebraska, the geology of Richardson and Pawnee and Newaha counties, the Dakota formation, and Pennsylvanian cephalopods, and published reports on the origin of geologic place names of Nebraska and on Pennsylvanian brachiopods. A geologic map of the State was prepared for publication.

New Mexico continued cooperative studies of the geology of the Central District, Grant County, and the Lordsburg District, Hidalgo County.

New York began a study of the geology of the Indian Lake quadrangle, continued studies of the geology of the Catskill, Russell, and Thirteenth Lake quadrangles, completed a study of the Berne quadrangle, and issued a second part of a handbook of paleontology.

Pennsylvania continued studies of the Devonian and Silurian stratigraphy, terrace deposits of the Susquehanna, glacial history of the Delaware Valley, revised a report on the geology and mineral resources of Fayette County, continued the geo-

VIII. PUBLIC RESOURCES AND UTILITIES

logic mapping of the Brookville, Confluence, Donegal, York, Hanover, Meyersdale, and New Cumberland quadrangles; published reports on the geology of Adams and Greene counties, on caves, meteorites, Devonian fauna, and the correlation of the Salona limestone; published a geologic atlas of the Freeport quadrangle and a geologic map of Pennsylvania.

South Dakota continued stratigraphic and paleontologic studies of formations below the Dakota, and published a geologic map of the State.

Texas published reports on some Texas fusulinids, the stratigraphy of Texas, and published a plane table map of the Reynosa escarpment in parts of Jim Hogg, Starr, and Zapata counties.

Virginia continued studies of the Eocene series, the geology and mineral resources of Abingdon quadrangle (cooperative), the geology of the Hot Springs district and the Stony Man quadrangle, the natural wonders of Virginia, the Paleozoic formations of Virginia west of the Blue Ridge, and published bulletins on caverns of Virginia, thermal springs of Virginia, the Lower York-James peninsula, and a geologic map of the Appalachian Valley in Virginia.

West Virginia continued work on the geology of Greenbrier County, and completed a geologic map of the State.

ECONOMIC GEOLOGY

Arkansas completed a report on earthquake risks. **Colorado** continued cooperative work on reports on the mineralogy of the State, and the geology of the Independence Pass Diversion Tunnel. **Idaho** published a report on the mineral resources of eastern Cassia County. **Illinois** began a study of the mineral resources of the Strea-tor quadrangle; continued studies of the mineral resources of the Illinois Valley, areal investigations of the Ottawa-Marseilles, Buda, Vermont, Wilmington, Beardstown, Carlinville, Barrington-Elgin-Geneva quadrangles, and the Chicago area. Reports on the results of magnetometer studies, on the Illinois mineral industry in 1931, and an economic survey and statisti-

cal review of the Illinois mineral industry were published. **Michigan** continued a study of the economic geology of Schoolcraft County and completed a study of the economic geology of Alpena County. **New York** issued a report on mining and quarry industries for 1927-1929. **Pennsylvania** began a study of the undeveloped resources of the State, and continued studies of the non-metallic minerals. **South Dakota** continued the preparation of a report on mineral production during the last twenty-five years. **Virginia** continued studies of the geology and mineral resources of Brunswick, Giles (cooperative), and Goochland counties, and of the Natural Bridge quadrangle. **West Virginia** continued work on a report on Greenbrier County.

FUEL MINERALS

Oil and Gas.—**Arkansas** began the compilation of a list of oil and gas wells drilled in the State; continued the preparation of reports on the oil and gas possibilities of the Gulf Coastal Plain, the oil shales of northern Arkansas, and the porosities of the sandstones of western Arkansas; and completed a report on a 7,255-foot test in the Smackover field. **Illinois** began studies on the removal of emulsion from oil, the protection of oil well casing against corrosion, well cuttings, repressuring plant methods, structure and oil possibilities in the Warsaw area; completed a restudy of the Allendale oil field; completed studies of oil sand core tests, and the western Lawrence County oil field; is publishing a report on a reconnaissance survey of the structure of parts of Jersey, Greene, and Madison counties; and published papers on mud-fluid materials in Illinois, petroleum developments in Illinois in 1929 and 1930, the need for sand coring in the southeastern Illinois oil field, effects of water-flooding on oil production from the McCloskey sand in Dennison Township, Lawrence County, and the effect of earth movements on the accumulation of oil and gas.

Indiana continued investigations of natural gas in southeast Indiana. **Kansas** continued studies of the sub-

surface geology of the shoestring sands of eastern Kansas (cooperative), and the state gas resources; and published reports on the oil and gas resources of Kansas in 1928 and 1929-30, the subsurface geology of northeastern Kansas, and published an oil and gas map of the State. Kentucky began the compilation of well logs and other oil and gas field data. Michigan completed a report on oil and gas. Missouri continued oil and gas studies in Western Missouri and published a progress report and a paper on the geology of the Blue Springs gas field, Jackson County. Montana continued a study of natural gas occurrences. New Mexico continued the preparation of a report on oil and gas resources. New York published a review of natural gas and petroleum developments. Pennsylvania continued studies of deep drilling, the Bradford oil field, the correlation of the oil sands with their outcrops, the gas fields of northeastern Pennsylvania; completed a study of the oil and gas fields of western Pennsylvania; and published an oil and gas map of western Pennsylvania. South Dakota continued the preparation of a report on the correlation of deep well logs. West Virginia began the publication of a report on the oil and gas fields of Tyler County, and published a report on the oil and gas fields of Wetzel County.

Coal.—Alabama continued studies of coal deposits. Illinois began studies of by-products of Illinois coal, the physical properties of coal under variations of temperature, pressure, and time; continued preparation of a general coal report, a study of the composition and fusibility of ash of Illinois coals, and the proximate and ultimate analysis of coals; published reports on Illinois coal, research needs of the Illinois coal industry, and the results of studies of the order and condition of accumulation of the Coal Measures. Iowa carried on investigations of coal deposits. Pennsylvania continued general studies on coal and reprinted a bulletin on the bituminous coal fields. South Dakota is publishing a report on coal occurrence in the

Bison area. West Virginia began a study of coal in Kanawha County.

METALLIC MINERALS

Arkansas completed a study of the titanium ore occurrences in Magnet Cove and published a report on the cinnabar deposits of Pike County. Alabama continued studies of iron ore deposits and completed studies of manganese ore deposits. Arizona carried on a study of the geology and ore deposits of the Eureka District of western Yavapai County, continued a study of the geology and ore deposits of the Jerome quadrangle, is publishing reports on the geology and ore deposits of southern Yuma County and of the Patagonia District of Santa Cruz County, and published reports on placers and placering and gold ore treatment. Colorado continued cooperative studies of the ore deposits of the State, the Jamestown area, Boulder County, and the Boulder County tungsten belt. Idaho continued studies of the Bayhorse quadrangle, the Leadore and Gilmore district, the Elk City-Buffalo Hump project, the Boisé Basin project, and the Yellow Pine-Edwardsburg project; continued research in metallurgy, and published reports on the recovery of gold from its ores, and prospecting for gold ores.

Missouri carried on field studies of iron ore deposits, magnetometer and resistivity surveys; continued a study of the igneous rocks of southeast Missouri; and published papers on magnetic surveys and the geology of the Silver Mine area. Montana continued studies of the geology and ore deposits of the Tobacco Root Mountains, the North Moocasin Mountains, the Montana gold districts, the hardening of copper by aging, and published reports on placer mining possibilities of Montana and flotation. New Mexico continued cooperative studies of the ore deposits of the Central District of Grant County, and the Lordsburg District of Hidalgo County; is publishing reports on the ore deposits of Sierra County and the metal resources of the State; and issued a report on the ore deposits of Socorro County. New York began a

VIII. PUBLIC RESOURCES AND UTILITIES

study of the structure of the Adirondack magnetite deposits. Virginia continued studies of the Cambrian hematite of the Blue Ridge, the geology and ore deposits of the Great Gossan Lead (cooperative), prepared for publication a cooperative report

on the lead and zinc deposits of southwest Virginia, and published a bulletin on the James River iron and marble belt. Wyoming continued the preparation of a report on the electrometallurgical resources of the North Platte River Basin.

RECLAMATION AND IRRIGATION

By HUGH A. BROWN

BUREAU OF RECLAMATION, DEPARTMENT OF THE INTERIOR

THE APPROPRIATION ACT

The Appropriation Act of April 22, 1932, for the fiscal year ending June 30, 1933, together with unexpended balances from previous appropriations, power revenues, and funds advanced by the water users, made available for Federal reclamation only \$5,183,120, the smallest amount appropriated for this work in the history of the Bureau. The appropriation was distributed as follows: storage system, \$843,000; distribution system, \$1,759,000; operation and maintenance, \$1,600,120; drainage system, \$366,000; power system, \$195,000; examination and surveys, \$225,000; and miscellaneous, \$195,000. Among the larger and more important items specifically mentioned are \$1,094,000 for continuation of construction of the canal and lateral system of the Owyhee project, Oregon-Idaho; \$500,000 for the Cle Elum dam on the Yakima project, Washington; \$300,000 for the canal and lateral system on the Gooding division of the Minidoka project, Idaho; \$125,000 for the canal and lateral system for the South Side division of the same project; \$299,000 for storage on the Salt Lake Basin project, Utah; \$131,000 for the drainage system on the Rio Grande project, New Mexico-Texas; and \$75,000 each for drainage work on the Klamath project, Oregon-California, and the Belle Fourche project, South Dakota. Direct appropriations of \$871,500 were made for the operation and maintenance of projects and parts of projects not yet turned over to the water users. Of

this sum, \$300,000 is for the Rio Grande project, and \$290,000 for the Yakima project, Washington, including \$40,000 for the Kittitas division. The Act also makes available \$225,000 for cooperative and general investigations to determine the economic conditions and financial feasibility of proposed projects, and \$25,000 to give advice and information to settlers.

AGRICULTURAL RESULTS

Acreage and Crop Values.—In 1931, the latest year for which statistics are available, the irrigated area of the Federal irrigation projects was 1,552,718 acres, an increase over that of 1930 of 47,908 acres. The area cropped was 1,520,354 acres (of which 57,789 acres were dry-farmed), a decrease of 30,613 acres. The gross value of crops grown on the projects was only \$40,554,037, a decrease under the 1930 value of \$24,453,233, and under the 1929 value of nearly \$48,000,000. These figures reflect, of course, the low prices received for agricultural products during the past two years. The average value of crops per acre in 1931 was \$26.70, compared with \$41.90 in 1930 and \$58.49 in 1929. The Federal irrigation works also furnished water in 1931 under the Warren Act or other water service contracts to 1,293,889 acres, of which 1,251,830 acres were cropped, producing crops valued at \$33,406,340, or \$21,248,210 less than in 1930 and more than \$39,000,000 less than in 1929. Thus the total value of crops grown in 1931 on land irrigated from the

RECLAMATION AND IRRIGATION

works of the Bureau of Reclamation was only \$73,960,377, or \$45,701,443 less than in 1930 and \$87,219,503 less than in 1929.

Crop Distribution.—Based on acreage, alfalfa hay and cotton were the leading crops grown on the Federal irrigation projects in 1931, alfalfa being grown on 481,116 acres or 31.6 per cent of the cropped area and cotton on 163,461 acres or 10.7 per cent. This showed a shift of approximately 28,000 acres from cotton to alfalfa in 1931 compared with 1930, owing to the continued low price of cotton and cottonseed. Among the cereals, the acreage of wheat decreased and that of barley, corn and oats increased slightly. Hay and

forage and vegetables and truck increased in acreage, whereas there was a slight decrease in the acreage of the seed crops, fruit and nuts, and sugar beets. Based on value, alfalfa hay was well above any other crop, being valued at \$8,543,436 or 21.2 per cent of the value of all crops. Garden truck was second with a value of \$5,060,325 or 12.5 per cent of the total, followed closely by sugar beets, \$5,016,671 and cotton and cottonseed, \$4,915,021. These four crops accounted for nearly 60 per cent of the total crop value in 1931. In the accompanying table a distribution is given by large groups, of the crops grown in 1931 on the Federal irrigation projects:

CROPPED ACREAGE AND VALUE, 1931

Crop	Acreage Cropped		Value		
	Total	Per Cent	Total	Per Cent	Per Acre
Cereals.....	305,017	20.0	\$3,503,201	8.7	\$11.50
Other grain and seed.....	40,195	2.6	534,020	1.3	13.30
Hay and forage.....	1,093,982	72.0	12,553,126	31.0	11.50
Vegetables and truck.....	173,706	11.4	9,027,999	22.3	52.00
Fruit and nuts.....	52,504	3.4	4,542,946	11.2	86.50
Sugar beets.....	73,621	4.8	5,016,671	12.3	68.20
Cotton (lint and seed).....	163,461	10.7	4,915,021	12.1	30.00
Other miscellaneous.....	23,574	1.6	461,053	1.1	19.60
Duplicate cropped acreage...	405,706	26.6	.....	.....	.....
All crops for which detailed census was taken.....	1,520,354 ¹	100.0	\$40,554,037	100.0	\$26.70
Warren Act projects.....	1,251,830	.....	33,406,340	.....	26.70
Total.....	2,772,184	.....	\$73,960,377	.....	\$26.70

¹ The dry-farmed area of this total amounted to 57,789 acres, producing crops valued at \$432,948 or \$7.50 per acre.

SETTLEMENT

Projects in Operation.—Twenty-eight projects or parts of projects were being operated in 1932. On these were 42,568 irrigated farms, with a population of 177,281; 227 cities and towns with a population of 514,425; 723 schools; 778 churches; and 120 banks, with deposits of \$10,743,500 and \$116,484,236 project and non-project depositors.

Farm Units.—During the year 53 farm units were opened to entry on the Riverton project, Wyoming; the Belle Fourche project, South Dakota; the Vale project, Oregon; the Green-

fields division of the Sun River project, Montana; and the Lower Yellowstone project, Montana-North Dakota. All except 10 of the farm units were on the Riverton project. Numerous inquiries were received from prospective settlers concerning opportunities to homestead land on the Federal irrigation projects, and the Bureau continued to work in cooperation with the railroads, chambers of commerce and local development associations with a view to the early settlement of those projects where settlement has lagged. This was particularly true of the Riverton project, although it has

VIII. PUBLIC RESOURCES AND UTILITIES

an ample water supply, a fertile soil and favorable climatic conditions for the production of staple crops. A local development association was organized which is cooperating with the Department of Commerce and Industry of the State of Wyoming and with the Bureau of Reclamation in advertising the project, as a result of which it is anticipated that practically all available farms will soon be settled.

The fourth unit of the Willwood division of the Shoshone project, Wyoming, which was opened in 1931 is 'being settled slowly but steadily. About 200 of the 268 farm units opened to entry in 1931 have been taken up by qualified settlers, that is by settlers having had at least two years' experience in farming and \$2,000 in cash or its equivalent in livestock, farm implements, or other assets as useful as cash. Lowering the restrictions would result in all available farm units being entered within a short period, as the Bureau and cooperating agencies are in receipt of numerous inquiries from *bona fide* homeseekers who cannot meet even these minimum requirements. One of the active local organizations cooperating with the Bureau in settlement and development work is the Vale-

Oregon Government Projects Land Settlement Association. This organization during the past three years has brought 70 settlers to the Vale project, Oregon. These settlers have purchased 7,119 acres of land in private ownership and have invested \$225,730 in land, fencing, clearing, buildings, plowing, leveling and miscellaneous items. Similar work is being carried on by local organizations on other projects.

Livestock and Equipment.—Livestock and equipment on the 28 operating Federal projects were valued in 1931 at \$29,105,971, or \$8,702,706 less than in the preceding year. The inventory showed 69,988 horses, valued at \$2,638,686; 9,788 mules, \$573,840; 87,692 beef cattle, \$2,327,568; 143,144 dairy cattle, \$6,121,758; 483,698 sheep, \$1,452,784; 109,172 hogs, \$571,886; 154 goats, \$2,109; 128 rabbits \$1,033; 2,113,604 chickens, turkeys, ducks and geese, \$1,696,792; and 34,892 hives of bees, \$149,044. Including the value of purebred and scrub sires of beef and dairy cattle, and that of brood sows, the total value of domestic animals, poultry and bees amounted to \$16,007,200, and that of farm equipment to \$13,098,771, of which motor vehicles accounted for \$7,126,616.

PUBLIC LANDS

BY CHARLES C. MOORE

COMMISSIONER OF THE GENERAL LAND OFFICE

ENTRIES

Area.—The original public-land entries for the fiscal year ended June 30, 1932, embraced 4,551,774 acres, which is more than 50,000 acres in excess of the annual average for the past ten years, the total for that decade aggregating 45,002,883 acres. The area of original entries for the past fiscal year was, however, nearly 13% less than last year and about 16% less than for the year ended June 30, 1930. The final entries declined in about the same proportion. As usual, the homestead business was far in the

lead. Nearly 90% of the area in new segregations and about 75% of the patented area was due to the homestead laws. At the close of the fiscal year there were embraced in pending unperfected entries, filings, and selections 24,164,842 acres, of which area 20,038,606 acres are contained in 55,532 homestead entries. The area of the remaining vacant, unappropriated and unreserved public lands, exclusive of Alaska, was 173,318,246 acres on June 30, 1932, located by states as shown in a table at the end of this article (p. 241).

PUBLIC LANDS

Land Entered and Patented.—The total area of public and Indian lands embraced in original entries allowed during the year was 4,551,774 acres, not including 53,102 acres embraced in public sales, timber and stone entries, mineral entries, and other miscellaneous filings. Of the total area embraced in allowed original entries, 3,543,582 acres were allowed under the Stock-raising Homestead Act of 1916. Of the total area of 1,897,978 acres patented, 1,438,075 were patented under the homestead law.

Mineral Entries and Locations.—During the year 301 entries under the mining laws were patented and 694 mineral entries were received for action. Oil-shale placer locations to the number of 10,918 embracing approximately 1,294,500 acres were declared null and void. Mining claims in conflict with the rights of way of the cities of Los Angeles and Pasadena, Calif., for reservoir purposes in connection with their water supplies have interfered with and are retarding the construction of the necessary dams. It became necessary to make field examination to determine their validity in order that all invalid claims situated in the area desired for construction purposes might be declared null and void. Such examinations have resulted in reports that 246 locations were unlawful and 163 have been declared of no effect. The Field Service reports there are a large number yet to be examined.

Oil and Gas.—Under the relief provisions of the Mineral Leasing Act 53 leases were granted. Under section 14 of the Act as a reward for discovery of oil or gas as the result of prospecting under a permit 44 leases were issued. Nine leases were granted under section 17 through public sale on which bonuses aggregating over \$68,000 were paid. During the year 1,060 prospecting permits were canceled.

PUBLIC LAND OFFICE

Reports on Legislation.—During the present session of Congress the office submitted memorandum reports on a total of 273 public and private bills affecting the public lands, of

which 55 became laws through the approval of the President. Instructions necessary to carry the laws into effect were issued in 51 cases.

Forest Fire Service.—The office continued cooperation, through its field service, with state and private interests, in the suppression and prevention of forest fires on the public lands. Due to exceptionally heavy fires during last summer and fall, the fire-suppression costs were slightly in excess of the amounts allotted to that use.

FIELD SERVICE

The field examiners investigated and reported upon 26,695 cases, of which 7,673 were adverse to the claimants and 19,022 favorable. There was a material reduction in the number of routine cases. Due to the activities of the field investigators, \$88,954.35 was collected and deposited in the Treasury, and 107,270.92 acres were restored to the public domain, representing fraudulent entries, etc., canceled on proceedings based on their reports, and 5,120 acres through action of the courts. Indictments were secured in seven cases, and of the criminal cases tried, three resulted in conviction, and prison sentence was imposed in one case.

CADASTRAL ENGINEERING SERVICE

Work on the survey of the public lands was conducted in 23 states and the Territory of Alaska. Such of those surveys and resurveys as are measured on a quantity basis aggregated 17,803 linear miles. In addition, miscellaneous surveys, including work for and in cooperation with other Federal agencies, were executed in every part of the public domain. During the year approximately 2,027,000 acres of agricultural lands were surveyed and resurveyed in the United States proper and Alaska. Cooperative surveys were executed for the Forest Service to the extent of approximately 800,000 acres, National Park Service, the Geological Survey, Coast and Geodetic Survey, Bureau of Reclamation, Federal Power Commission, and various Indian reservations. There were accepted and placed on

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file plats representing 1,598,220 acres of original surveys of public lands, and 768,093 acres of lands resurveyed, an aggregate of 2,366,313 acres.

RECEIPTS AND EXPENDITURES

Receipts.—The total cash receipts from sales, leases, and other disposi-

tion of public lands (including receipts from copies of records, sales of government property, etc.) were \$4,065,210.76, and from sales of Indian lands \$63,874.01, an aggregate of \$4,129,084.77, the source of which and disposition in the Treasury are shown in the following table:

Source of Receipt	Disposition in the Treasury			
	General fund	Reclamation fund	State fund	Total
Sales of public lands.....	\$ 45,962.43	\$ 114,575.00	\$ 6,260.00	\$ 166,797.43
Fees and commissions.....	68,938.87	268,561.00	.....	337,499.87
Bonuses, rentals, and royalties from mineral leases.....	345,161.75	1,698,987.18	1,213,562.27	3,257,711.20
Proceeds of land and timber in Oregon and California railroad grant.....	.....	.....	164,920.91	164,920.91
Proceeds of land and timber in Coos Bay wagon-road grant ..	53,903.55	.....	17,677.75	71,581.30
Power permits.....	14,981.45	.....	.....	14,981.45
Fees from copies of records.....	12,810.45	.....	.....	12,810.45
Royalties and rentals from potash deposits.....	.....	12,138.99	.....	12,138.99
Sale of reclamation town sites.....	.....	6,293.70	.....	6,293.70
Miscellaneous (rent of land, royalties on coal leases and fur farms in Alaska, sale of timber in Alaska, surveying fees, etc.)	20,475.46	.....	.....	20,475.46
Total.....	\$562,233.96	\$2,100,555.87	\$1,402,420.93	\$4,065,210.76
Sales and leases of Indian lands.....	.....	.....	.....	63,874.01
Aggregate.....	.....	.....	.....	4,129,084.77

¹ First and fourth column contain \$20,732.85 royalties received in Wyoming under the Act of June 26, 1926.

² It is estimated that this amount will be paid to certain counties in Oregon in lieu of taxes.

³ Amount payable to Coos County, 25 per cent of proceeds of land and timber.

⁴ Of the amount received as royalties from oil lands in the bed of Red River, Oklahoma 37½ per cent, \$6,023.69 is paid to Oklahoma, and the balance, amounting to \$10,039.45, is credited to the Kiowa, Comanche, and Apache Indians.

Expenditures.—The total expenditures for the conduct of the business of the General Land Office and its field activities, including the expenses of the district land offices, amounted to \$2,204,224.16.

MAPS

The map of the United States, 1931 edition, has been printed and is now being distributed. New maps of Wisconsin and Wyoming have also been issued, and maps of Idaho and Oregon are in the hands of the contractor for printing. Work is progressing upon the recompilation of the maps of the States of Arizona and Colorado, and preliminary work has been undertaken on the compilation of a new map of

the Territory of Alaska. In addition to the above, several maps were prepared for the Department of Justice for use in the case of the United States *v.* Northern Pacific Railway Company, *et al.* and work was continued in the preparation of numerous maps in connection with suits brought by the Sioux and other Indians, for lands for which the Indians claim they have never been compensated.

RECEIPTS UNDER THE MINERAL LEASING ACT

Receipts from bonuses, royalties, and rentals under the law providing for the leasing of mineral rights on the public domain aggregated \$3,236,978.35. The largest receipts were ob-

PUBLIC LANDS

tained from the leasing of mineral lands in Wyoming, the amount being \$1,435,109.81, but California was a close second with receipts totaling \$1,402,264.05. Smaller amounts were received from lands in New Mexico, Utah, Colorado, Montana, North Dakota, Washington, Alabama, Louisiana, Idaho, Nevada, South Dakota and Oregon, in the order named. These figures do not include \$20,732.85 received as royalties in Wyoming under the act of June 26, 1926, of which the State does not receive a share, nor \$4,523.25 received as royalties on coal leases in Alaska, of which the Territory receives no share. Under the terms of the law each state receives 37½ per cent of the receipts from bonuses, rentals and royalties derived from the public lands within its borders, the reclamation fund receives 52½ per cent, and the other 10 per cent is paid into the U. S. Treasury and credited to miscellaneous receipts.

GRAZING LANDS

For stock driveways, to expedite the movement of stock between grazing areas and to shipping points,

84,980 acres were withdrawn. The total area included in such withdrawals at the close of the year was 9,535,955 acres.

RECLAMATION AND IRRIGATION

Action was taken on 667 original homestead entries involving lands in Federal reclamation projects; 317 assignments were considered; 123 desert-land entries and 240 final reclamation homestead entries were approved for patenting. Since the passage of the acts of August 11, 1916, and May 15, 1922, applications by 79 districts for approval have been received. During that period applications by 59 districts, embracing 2,441,864 acres, have been approved, and applications by 17 districts, involving 351,073 acres, have been rejected. Three hundred and fifty-nine cases under the desert-land laws were approved, and 392 canceled. There was also considerable activity under the Carey Act, providing for reclamation of arid lands under state supervision; the Pittman Act, to encourage the development of underground waters in Nevada, and the swamp land grant to the several states entitled thereto.

AREA OF VACANT PUBLIC LAND

States	Area, in acres		
	Surveyed	Unsurveyed	Total
Arizona.....	6,822,760	6,759,000	13,581,760
Arkansas.....	175,924	.....	175,924
California.....	10,297,683	5,414,884	15,712,567
Colorado.....	6,395,425	1,072,172	7,467,597
Florida.....	11,879	20,424	32,303
Idaho.....	9,274,312	1,591,160	10,865,472
Minnesota.....	269,451	.....	269,451
Montana.....	6,151,409	87,020	6,238,429
Nebraska.....	20,225	.....	20,225
Nevada.....	30,186,828	21,035,106	51,221,934
New Mexico.....	12,431,000	1,184,150	13,615,150
North Dakota.....	142,694	.....	142,694
Oregon.....	12,826,003	94,331	12,920,334
South Dakota.....	419,270	.....	419,270
Utah.....	13,656,351	11,541,469	25,197,820
Washington.....	706,287	2,076	708,363
Wyoming.....	14,197,028	531,925	14,728,953
Total.....	123,984,529	49,333,717	173,318,246
Territory of Alaska.....	.....	346,195,895	346,195,895
Grand total.....	123,984,529	395,529,612	519,514,141

¹ This total does not include areas remaining undisposed of in the States of Alabama, Kansas, Louisiana, Michigan, Mississippi, Oklahoma and Wisconsin, nor the area of the vacant and unserved surveyed public lands in Alaska, which figures are not available.

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PUBLIC SERVICE COMMISSIONS

BY JOHN BAUER

DIRECTOR, AMERICAN PUBLIC UTILITIES BUREAU

PUBLIC UTILITIES

Characterization.—Because of their special economic characteristics, electric, gas, telephone and similar concerns have been recognized as public utilities in distinction from ordinary private business. They occupy such an exceptional position in our economic organization that they have been viewed as being vested with a special public interest, and are, therefore, called "public utilities." This special characterization is based in part upon the privileges granted to the companies for the occupancy of streets and other public places, in part on the exercise of the right of eminent domain in condemning private property for particular uses, and, particularly as a broad economic matter, upon the monopoly status of the companies and the fundamental importance of the services under present day conditions.

Regulation.—With the recognition of the special public interest in the public utilities, efforts have been made to place them under public control. This has consisted principally in the creation of public service commissions, or similarly titled bodies, which have been charged with the responsibility to regulate the utilities in the public interest. Their chief duty has been to fix reasonable rates, and to provide proper methods and procedure for reasonable rate determination. They have been charged also variously with other tasks, including the provision of adequate service, to assure safeguards against accidents, to regulate accounting, to control the issuance of securities, and, within the terms of the statutes, to conserve and promote the public interests.

CRITICISM AND INVESTIGATION

Among the various duties, the fixing of reasonable rates has stood out as the paramount responsibility

of the commissions. The present commission system has existed about twenty-five years. In recent years, it has been subjected to extensive and rigorous criticism. Several state investigations have been made to determine its effectiveness, to disclose the defects that have developed, and to set out the changes that should be made for the systematic protection of the public interest. Among the investigations, those in New York, Massachusetts, Pennsylvania, Wisconsin and South Carolina, stand out as particularly important. The basic defect that has developed consists of the inadequate yardsticks for the determination of reasonable rates, especially in the determination of the rate base, or the so-called "fair value" of the properties, upon which a fair return must be allowed. The second principal defect appears in the far-flung development of the holding company system. This resulted in taking the managerial control from the local operating companies which were subject to the commission jurisdiction, and transferring it to interstate holding corporations which were beyond the direct state jurisdiction. The third defect consisted of inadequate powers and facilities provided for the effective functioning of the commissions.

DIFFICULTIES OF RATE-MAKING

Under the conditions that developed, the commissions have been practically unable, however well intentioned, to carry out their public responsibilities in a satisfactory manner. No commission could possibly administer its rate-making tasks under the "fair value" rate base. To carry out rate-making upon a systematic basis, requires the institution of a fixed accounting rate base through legislative action, instead of the indefinite and fluctuating rate base which exists under the

prevailing law of the land. Every attempt to adjust rates under the present system creates sharp conflict of interest between the company and the consumer. The determination of "fair value" does not depend upon exact facts readily ascertained, but upon estimates and guesswork. It not only involves sharp conflict of interest between the companies and the public, but results in a cumbersome and expensive procedure. The more severe critics of regulation have charged that the system has virtually broken down. While this view may perhaps be extreme, it nevertheless emphasizes the ineffectiveness that has developed to a greater or less extent with all commissions in the country.

The difficulty is basically with the system rather than with the personnel of the commissions. And the ineffectiveness has become emphasized particularly during the past three years when there has been a sharp reduction in costs and purchasing power and when lower rates should have been extensively ordered by the commissions. In the competitive industrial fields, there have been deep price-cuts in practically all commodities and services that enter widely into public use. But in the case of public utilities, the reductions have been almost negligible. They stand virtually alone in failing to make marked concessions to the consumers in line with basic economic changes. This applies especially to the electric utilities. As to them, even prior to the economic collapse in 1929, there had been growing discontent throughout the country against the prohibitive residential rates, the high commercial rates, and the excessive charges to the municipalities for street lighting and other municipal purposes. For the industrial power users, the rates have been low because they were fixed through vigorous competitive forces. But in the residential, commercial and municipal fields, the companies occupied an effective monopoly position, and have, therefore, fixed rates on a much higher level than for industrial power purposes.

The criticism against the high rates in the three non-competitive domains has increased greatly during the period of depression, and especially during the past year when the purchasing power of municipalities and residential and commercial consumers had become extremely restricted. The commissions have not been able, however, to meet this condition effectively. They have been hampered by the cumbersome processes required for a determination of the "fair value" rate base in the ordinary rate procedure. They have been unable to make systematic valuations of all, or even of a small proportion, of the properties, and to fix rates on the basis of present day conditions. They have been virtually helpless so far as their sovereign power is concerned, in dealing with the public needs.

PUBLIC ASPECTS OF REGULATION

New York Conference.—During April, 1932, there was a special conference in New York of about 200 persons specially interested in the public aspects of regulation. This included commission representatives, economists, students, public officials, experts, and others interested in effective regulation from the public standpoint. Among all the groups except the commission representatives, there was almost general agreement as to basic difficulties and as to what should be done to make regulation a much more satisfactory instrument of public policy. But the attending commissioners as a group refused to join in the expression of criticism against the existing system and to recommend basic changes as to rate base and administration.

Commission Procedure.—Notwithstanding, however, their unwillingness to share with others in specific criticism and proposals for reform, several commissions have at least tacitly admitted during the past year the ineffectiveness of their regular procedure. From formal rate cases, they have turned to informal "bargaining" for rate reductions. They have thus acknowledged the fact that they could not proceed through

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the legal methods of valuation without prohibitive cost and dubious outcome. They have, therefore, proceeded informally to call together the representatives of the companies and to "negotiate" for revisions of rates. They have virtually resigned their legal power conveyed to them by the legislatures of the states, and have come to the companies as petitioners for such reductions as the managements may be willing to concede under the distressing economic circumstances.

"Bargaining" Process Failure.—As a practical procedure, the "bargaining" process is doubtless justified, especially under the exceptional circumstances when even a small margin of relief is something to be considered for the consumers. But as a method of regulation, considered from the standpoint of permanent or long-term policy on the part of the states, it represents signal failure in establishing adequate policies, standards and methods for public regulation. If there is a special interest in the utilities that requires control on behalf of the public, then the scope of that interest should be clearly defined by legislative action and should be definitely provided for through appropriate administrative standards and machinery.

Revision of System Needed.—Regulation as a policy cannot be satisfactory unless it embodies clear public objectives, provides definite standards, and creates adequate administrative facilities for systematic function-

ing upon an exact basis. Until such a revision of system has been established, the commissions can only flounder under their enormous tasks. The system of bargaining will doubtless yield some results, if energetically pursued, but it does not express clearly and conserve definitely the relative public and private rights, and is bound to be unsatisfactory from the public standpoint. It is a make-shift, and not a system of regulation that can be adopted as a long-run public policy.

OTHER COMMISSION ACTIVITIES

Apart from the ineffectual struggle over rates, the commissions have made indubitable progress in other lines of regulation. In part through changes in the law, but chiefly through more energetic action, several commissions have limited, or eliminated, the "management fees" and other holding company charges to the local companies, where not justified by the local needs or costs. They have checked the various intercorporate financial relations which had resulted in placing undue burdens upon the operating companies. They have also developed short-cut methods of investigation, and have speeded up the determinations and decisions. Notwithstanding reductions in their appropriations and personally, they have exerted themselves more clearly in the public interest. There is increasing hope that regulation may be fundamentally reconstructed as a satisfactory instrument of public policy.

MUNICIPAL OWNERSHIP OF UTILITIES

BY H. M. OLMSTED

ASSOCIATE EDITOR, *The American City*

FEDERAL AID

Emergency Relief Act.—Municipally owned public utilities received aid and stimulus in 1932 from an unexpected source,—the Federal Government. For many years the use of public works in helping to offset fluctua-

tions in employment and business prosperity has been urged by eminent economists and others, and received the approval of President Hoover when he was Secretary of Commerce. After the economic depression occurred, this policy was

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urged upon the Administration and an extensive program of public works was advocated as an important means of creating employment and increasing the nation's purchasing power without at the same time accentuating competition in private industry. A corollary of this doctrine, urged by some thoughtful students of the situation, was that such a program should be financed, ultimately at least, by taxes upon surplus income and wealth, in order to limit excessive expansion of production facilities. This policy received slight encouragement from the Administration, but finally obtained a measure of recognition in the Emergency Relief and Construction Act, which was largely the work of Sen. Robert F. Wagner, of New York, and was signed by President Hoover July 21, 1932. In this act, besides a third of a billion for Federal public works, the use of one and one-half billions of Federal credit was authorized for local public works, and limited-dividend housing, but instead of adopting the proposal that these local public works be financed immediately or ultimately out of taxation, the stipulation was made that they should be self-liquidating out of receipts other than taxes. Obviously, one of the most outstanding forms of public works of a self-liquidating character is public utilities, including water works, electric light and power systems, gas plants and transportation, to mention those which American cities provide for themselves to any appreciable extent. These are commonly assumed to be properly self-liquidating, although a portion of the cost of some of them is frequently met from taxation—notably in the case of New York subways and in many water-supply systems where the cost attributable to fire protection is paid for by the city. As to most other forms of public works the policy has been increasingly that they be free from charges to the users.

R. F. C. Loans.—The Reconstruction Finance Corporation, which was charged with the issuance of Federal loans for self-liquidating projects,

made the first of these in October. Up to December 1, 37 of these loans, totaling \$139,394,500, had been authorized. The first was a loan of \$40,000,000 toward an estimated \$283,586,000 required to finance the vast metropolitan water district of Southern California, which will provide water from the Colorado River for Los Angeles and a number of smaller cities by means of an aqueduct which will rival the Hoover Dam in cost. The largest single item in the total amount was \$62,000,000 for a bridge across San Francisco Bay,—a toll bridge under public auspices, connecting the cities of San Francisco and Oakland. As to the rest, 19 loans totaling \$4,588,500 were for municipally owned water-supply systems or extensions, one of which also included some sewerage construction; three others, amounting to \$999,000, were for municipal sewer systems or extensions; one was for an addition to a municipal electric plant, and one for a municipal rail terminal. A loan of \$1,476,000 was made to the Maverick County, Tex., Water Control District No. 1, for an irrigation and power system. Various other loans have been made to drainage and flood control districts, and for public or private toll bridges, and one private water company received a loan amounting to \$70,000.

RATIO OF UTILITY PAYMENTS TO TAXES

The depression has served to emphasize the financial benefits of publicly owned utilities, in view of the tremendous and frequently fanatical crusade for tax reductions that has swept the country. In this campaign nothing is ordinarily said about the relative financial importance of local tax payments and payments in rates by the consumers of public-utility services in the cities. As a matter of fact, the latter far overshadow the former in size. It was brought out in *The American City* in September that the payments in rates to privately owned utilities in 1927, the date of the last Federal census of manufactures, were about \$4,790,000,-

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000, including electric light and power, electric railways, telephones, gas and water. The total property taxes, including those of counties, townships and school districts, as well as municipalities of all sizes, were \$4,061,000,000 in the same year, according to the National Industrial Conference Board, while for cities of over 30,000 population, from which a large proportion of utility revenues is derived, the 1927 general property tax amounted to only \$1,889,000,000, according to the Census Bureau's *Financial Statistics of Cities*.

For specific cities the ratio of utility payments to taxes may be considerably greater than indicated by these figures. City Manager C. A. Dykstra, of Cincinnati, states that for his city the public-utility services of gas, electricity and telephone cost the citizens from three to four times as much as do the public services paid from taxes. It is, therefore, obvious that reductions in utility charges are much more important to the citizens at large than reductions in taxes, and this is brought into sharp relief by the fact that a large number of cities, particularly those owning their electric utilities, contribute considerable sums, directly or indirectly, to the relief of taxes. Approximately 60 small cities have even dispensed entirely with local taxation for the operation of the municipal government (exclusive of schools and debt service), these costs being met from the receipts of municipal utilities. Whether the subsidizing of taxpayers to this extent is wise social policy may well be doubted, but it is a matter that can be left for the citizens of a given community to settle democratically, and the existence of such possibilities emphasizes the stronger and more flexible financial position which cities owning their utilities can achieve.

DIESEL ENGINES IN MUNICIPAL PLANTS

Diesel engines have been proving valuable assets of small and moderate-size municipal plants. The report for 1931 of the Oil-Engine Power Cost Committee of the American So-

ciety of Mechanical Engineers, as analyzed by L. H. Morrison in *The American City* for December, 1932, showed better Diesel-engine results for municipal plants than for private utility plants. The largest municipal Diesel installation in this country is now under construction in Vernon, Calif., consisting of five 7,000-horsepower units.

RESIDENTIAL ELECTRIC SERVICE RATES

Two interesting studies of rates for residential electric service, furnishing comparisons between municipal and private utilities systems, appeared during the year. George W. Page, City Commissioner, and Otto P. Ortlieb, Engineer of Street Lighting, Trenton, N. J., compiled comparative rates for 190 cities in the United States having over 50,000 population. Monthly bills for various quantities of electrical energy in kilowatt-hours, were computed for an average 7-room house. The average rates for 13 municipal and 177 private systems, for the various amounts of consumption, were as follows:

	Municipal	Private
Minimum	\$0.55	\$0.80
10 kwh.	.62	.94
20 "	1.07	1.56
30 "	1.57	2.20
40 "	2.00	2.77
50 "	2.38	3.31
80 "	3.33	4.45
100 "	3.98	5.17

The Public Service Commission of Wisconsin made a somewhat similar study of residential electric rates in municipalities of over 1,000 population, in that state, as of August, 1932, using a 6-room house as a basis and making such other assumptions as represented reasonable average conditions. The comparative average rates for the 54 municipal and 111 private utility systems, as derived from this study, which was reported in the November, 1932, issue of *The Municipality* (Wis.), are:

	Municipal	Private
20 kwh.	\$1.67	\$1.86
40 "	2.85	3.23
60 "	3.73	4.11
100 "	4.98	5.33
150 "	6.44	6.77

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As most of these municipalities are of small population, the rates are relatively higher than for the cities covered by the other study mentioned.

CONSTITUTIONAL AMENDMENT IN WISCONSIN

In Wisconsin, at the November election, a constitutional amendment, excluding bonds for municipal utility financing from the limit of five per cent of the assessed valuations of municipalities, was approved by the voters. This amendment had already passed the legislature twice as required by the state constitution. Thus one of the legal handicaps to municipal ownership and operation was lifted, at a time when the country at large was prone to impose stricter limitations upon municipal finances.

EIGHTH AVENUE SUBWAY

The most outstanding new projects are the Colorado River water-supply undertaking of the Metropolitan Water District of Southern California, already referred to, and the municipal subway system of New York City. The first completed section of this,—the Eighth Avenue line from Chambers Street to 207th Street, representing an investment of \$191,000,—began operation on Sept. 10, 1932. Municipal operation of the new system, the construction of which has cost the city some \$675,000,000, was approved on June 17 by the Board of Estimate and Apportionment, no unification plan having so far been consummated, and no satisfactory bids having been received for private operation. The success of the Eighth Avenue line is handicapped by the lack of connection with Brooklyn, the Bronx or Queens, but such connections are nearing completion, and it is expected that one or more of them will be opened in 1933, if the city is able to continue financing them. Traffic on the existing line is somewhat less than had been estimated, but it is sufficient to meet operating expenses. For the period from Sep-

tember 10 to October 31 receipts were \$457,554, with a surplus of \$44,690 above operating expenses exclusive of depreciation. The method of financing subway construction was the cause of much dissension toward the end of the year, various taxpayers groups protesting the plan, heretofore followed, under which a considerable portion of the cost came out of the annual budget. This plan was accordingly abandoned by the Board of Estimate, over the objection of Acting Mayor Joseph V. McKee; 50-year bonds are to be substituted, thus relieving the 1933 budget of nearly 50 millions, but greatly adding to the ultimate interest cost and casting a large burden upon the subway riders in the form of a much higher fare than the five-cent rate after the three-year period during which the latter is protected—unless some future scheme of unification with the other rapid-transit lines, largely city-owned but privately operated, succeeds in keeping the fare down.

DETROIT STREET RAILWAYS

The Detroit Street Railways, a highly successful municipal enterprise during prosperous times although burdened with heavy amortization, has been hard hit by the depression in that city. The 12 months ending Oct. 31, 1932, showed a drop of 13 per cent in revenue passengers from the preceding 12 months; but by drastic reduction in operating expenses a net income of \$559,657 was produced, as against a previous deficit of \$152,591. Even this net, however, was far from sufficient for total sinking-fund requirements.

RESEARCH

Professor Raver.—Two outstanding research studies of municipally owned electric plants appeared during the year. Professor Paul Jerome Raver of the Northwestern University School of Commerce is the author of a monograph entitled *Recent Technological Developments and the Municipally Owned Power Plant*,

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published by the Institute for Economic Research, Chicago. This traces the development of various methods of generation, showing the rise and decline of the reciprocating steam engine as a prime mover, the steady rise of steam turbines, the more fluctuating growth in number of oil-engine plants, the increase of water power, chiefly in conjunction with fuel engines, and the uninterrupted growth in total horsepower of municipal generating plants, although both the number of such plants and the percentage of generating systems to all municipal systems have declined since about 1920. Plants below certain capacities, ranging from 300 to 1,000 horsepower, depending on geographical region and the type of prime mover, have tended to disappear, while those of

greater capacity have in general increased.

Dr. Frederick L. Bird, Assistant Director of the Municipal Administration Service, New York City, brought out a valuable booklet under the auspices of that organization, on *The Management of Small Municipal Lighting Plants*, based largely upon an intimate study of the 51 municipal electric systems in the state of New York, supplemented by the author's wide knowledge of conditions in similar establishments in other parts of the United States. It presents the situation regarding the administration and control of such enterprises, making suggestions for improvement where needed, and typifies a constructive approach to municipal ownership problems that is all too rare.

PUBLIC OWNERSHIP OF WATER POWER

By H. M. OLMSTED

ASSOCIATE EDITOR, *The American City*

GENERAL

Although overshadowed by general economic issues and other considerations, the question of public ownership of water power not only received attention in the presidential campaign of 1932, but on account of the election of Franklin D. Roosevelt, it looms larger as a positive program than for many years past. Governor Roosevelt is not only committed to the retention in government ownership of water power sites already in the nation's possession,—a policy which President Hoover has also in general approved—but he is notably more sympathetic with the broader policy of public ownership and is not antagonistic to public operation of such projects, at least so far as the generation and long-distance transmission of electricity is concerned.

MUSCLE SHOALS

It is regarded as of practical certainty that the Norris resolution for government operation of the hydro-

electric plant at Muscle Shoals, Alabama, will continue to be kept before Congress, and its approval by Mr. Roosevelt after his accession to the Presidency seems highly probable. Such action would conserve to the nation a power project of great magnitude under favorable terms for the public. It would permit the consistent development of the Tennessee River from a power standpoint and a substantial realization of its revenue-producing possibilities. It would also tend to remove from "politics" an issue that has so far generated much more heat than electricity. The immediate economic importance of Muscle Shoals, whether for fertilizer production or power, particularly under present conditions, has no doubt been exaggerated by some of the government ownership proponents, but private exploitation would be subject to the same economic circumstances, and the interest of the public, now and in the future, would be much more difficult to protect.

PUBLIC OWNERSHIP OF WATER POWER

Even with operation of the plant by a government corporation, the question of transmission and distribution remains. Senator Norris proposes the sale of power at wholesale to distributing agencies, whether public or private, if suitable contracts can be secured; otherwise the corporation would be empowered to proceed the next step farther and construct transmission lines, thus giving it wider selection of possible markets. It is believed that this provision permitting the government's agency "to barter in the markets" was the chief reason for President Hoover's veto, but it is thoroughly in harmony with Mr. Roosevelt's policy as expressed in connection with the St. Lawrence project.

ST. LAWRENCE RIVER

Development of power from the St. Lawrence River by the State of New York has not reached the stage of construction. The chief accomplishment of the year was the drafting of a treaty between the U. S. and Canada, authorizing the joint development of the river for navigation and power. Governor Roosevelt and the New York State Power Authority had sought to reach an agreement with the Hoover administration as to features where New York was involved, but this desire was not granted, and the treaty as negotiated by the State Department was signed and published July 18, 1932, without the New York officials' being previously informed of its terms.

These terms include the provision that two dams be built,—the Canadian suggestion—whereas the New York Power Authority strongly preferred a one-stage development, with one dam, which would materially lower the cost of construction and of the power produced. The cost per horsepower-year at the busbars was estimated as \$9.00 under the single-stage plan. The treaty further provides that the power capacity of the development be shared equally between the two countries; the cost of construction is also to be shared, but each country is to consider as con-

tributions to the project expenditures already made for navigation purposes, such as the Welland and Soo canals, these offsets causing a net reduction in Canada's share of the St. Lawrence project. The relations between New York and the Federal Government are to be determined later. Vice-Chairman Delos M. Cosgrove of the New York Power Authority, addressing the Williamstown Institute of Politics on Aug. 8, said regarding obligations sought to be placed upon his state: "It has been asked by the Federal Government to assume a share of the cost exceeding by many millions of dollars the combined cost of the development for both navigation and power in the American half of the international section of the river. The representatives of the Federal Government declared that it was their original intent to burden power with all that the traffic would bear." Mr. Cosgrove also stated that the river is capable of a development of 2,200,000 horsepower, and that New York's half represented a potential production of 6,500,000,000 kilowatt-hours, equivalent to more than half of all the electricity now sold annually to all classes of consumers by the power companies of the state.

CONSUMER PROTECTION

In both the Muscle Shoals and the St. Lawrence projects the question of protection of the ultimate consumer is raised. For governmental agencies merely to construct and operate hydroelectric power plants the output of which would be sold to private companies for distribution under existing state regulation, would hardly be of much immediate public advantage and might very possibly result in the benefits being absorbed by the private corporations rather than by the mass of consumers. The chief virtue of public ownership in such a case would be that of safeguarding a valuable natural resource against complete alienation to private interests which would prevent future expansion of the scope of public operation in the interests of the consumers. The New York Power

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Authority is, however, expected to include in contracts for wholesale power disposal provisions for passing on to the ultimate consumer the lower costs of production, and if such contracts cannot be negotiated, the Power Authority is to recommend alternative methods to the legislature.

HOOVER DAM

The Federal Government's tremendous Colorado River flood-control, irrigation, water-supply and power project progressed rapidly during the year, so far as construction work at the site of Hoover Dam was concerned. In November the first of four huge diversion tunnels to by-pass the water of the river around the damsite during construction was put into use. These tunnels, two on each side of the river, are 56 feet in diameter, and are from 3,560 to 4,300 feet long, in solid rock, lined with concrete. They have been completed nearly a year ahead of schedule. The rest of the work done at the site consists chiefly of the construction of highways, a railroad, a concrete plant, and Boulder City, Nev., a completely and scientifically planned community, with housing for the workers and buildings for administration purposes. The dam will provide a power capacity of over 1,000,000 horsepower, some two-thirds of which will be continuously available.

The problem of safe-guarding the ultimate consumer in the case of Hoover Dam power is simplified by the fact that the major part of it will be utilized under public auspices, partly for pumping water for the Metropolitan Water District of Southern California and partly for general distribution by Los Angeles and other municipal light and power systems. A portion is available to the Southern California Edison Co., which, however, has indicated that it may not be utilized.

FEDERAL POWER COMMISSION

New River Navigation Case.—The Federal Power Commission, which has jurisdiction over power sites that are on navigable streams and are

hence in national ownership, has come prominently before the public at times in the past year. One such occasion was in connection with the application of the Appalachian Electric Power Co. for a minor-part license, not involving Federal regulation, on the New River in Virginia, which the company claimed to be non-navigable. The Commission existing prior to the reorganization of 1930 had, in 1927, declared this stream non-navigable. The Commission in 1931 denied the application for the minor-part license, but the majority, consisting of Chairman George Otis Smith, Ralph B. Williamson and Marcel Garsaud (whose term has since expired), refused to declare the river navigable. The other members are Claude L. Draper and Frank R. McNinch. The company brought suit against the Commission, in a Federal district court, where the questions of navigability (which involves not only the stream under consideration but its effect on the navigability of other streams) and of the validity of the Federal Water Power Act itself will be decided. On October 17, after the suit was brought, the Commission announced the adoption of a resolution declaring the New River, within certain limits, to be in the category of navigable waters. The outcome of this suit will be watched with interest, as it affects Federal control over many such streams and also the constitutionality of the Act.

Recapture of Power Plants.—Another important case was that of the Clarion River Power Co., which had attacked the authority of the Commission to determine and adjudicate the actual and legitimate investments of power companies,—a vital point, as it affects the cost of recapture by the Government of licensed power plants at the expiration of the 50-year license period. After the case had passed through various courts the U. S. Supreme Court, on Oct. 17, 1932, upheld the Commission's authority. In this particular case the company had alleged a cost of \$11,032,816, from which amount the Commission eliminated items totaling \$6,387,731.

PUBLIC OWNERSHIP OF WATER POWER

Federal Power Act.—On November 28, 1932, the Commission made an announcement proposing various changes in the Federal Water Power Act, one of these being to extend the jurisdiction of the Commission over holding companies having relations with licensee companies. Such jurisdiction is desired because the holding companies can effect such important matters of concern to the Commission as the determination of original costs and net investment, the right under certain circumstances to expropriate excess profits, and the right to regulate and control service, rates and securities. More authority to cooperate with states in regulating the interstate transmission of power was also sought.

Commission's Report.—A report of the Commission made public on September 18 indicates the magnitude of the projects under its jurisdiction. A somewhat incomplete tabulation showed a present capacity of 1,867,600 kilowatts in licensed plants, all for public utility purposes, and a possible capacity of 2,813,900 kilowatts.

RECLAMATION POWER PLANT

Another and much smaller group of water-power developments in Federal ownership consists of twenty hydroelectric plants on eleven Federal reclamation projects in operation during the fiscal year 1931-1932. These are referred to in the annual report of the Bureau of Reclamation to the Secretary of the Interior, made public early in December, 1932. The total installed generating capacity of these plants is 102,500 kilowatts, and in the year mentioned they produced 331,739,500 kilowatt-hours, of which 21 per cent was used for irrigation and drainage pumping, and 65.4 per cent was sold for commercial and industrial use, with the remainder going for miscellaneous uses and losses. The annual income from power projects was \$400,167. Nine of the plants were operated by the Government and eleven by the users of water. All of them have been built wholly at the cost of the Government. Instead of permitting

any of the income to accrue to the water users, Commissioner Elwood Mead asks legislation to reserve it to the Government, saying: "The Bureau of Reclamation has taken the position that the power plants which are built with Government funds or which utilize power opportunities created by such expenditures should be the perpetual property of the Federal Government and that the profits resulting therefrom should be used to further the work of reclamation."

THE SEATTLE WATER POWER PROJECT

There are, of course, many municipally owned, and one county-owned, waterpower projects in the United States, the most ambitious of which is that of Seattle, Wash., with its ultimate plans for 1,120,000 horsepower. While the city has been very successful in operating the present development of about 130,000 hp., it has been handicapped during the depression in obtaining funds for further expansion. Application has been made to the Reconstruction Finance Corporation, and it is expected that \$6,000,000 or more will be loaned by that agency of the Government, as such a project is outstandingly of the self-liquidating type.

HYDRO VS. STEAM

Into the discussion of water-power, public or private, enters the question of the comparative value of steam as a generating medium. In the United States much water power exists too far from populous centers to be economical, and private power interests frequently assert that improvements in steam generation have been such as to render an increasing amount of the less distant hydroelectric power sources uneconomical as compared with steam, where cheap fuel is available. Conflicting engineering estimates are made with regard to specific projects. One element, worthy of more consideration than is usually given it, is that of the conservation of fuel resources; and in the purely immediate economic computations another factor, that of

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fixed charges, admits of widely different treatment. As fixed charges are of far greater importance in the case of water power than with steam generation, it makes a great difference whether they are applied to reasonable, actual investment or to inflated values, and also whether interest charges are low or high. As capital charges on public developments are based on actual cost and involve relatively low interest, public ownership of water power has the advantage over private projects, in the comparison with fuel-burning plants.

WATER SUPPLY

By H. BURDETT CLEVELAND

CONSULTING SANITARY ENGINEER, NEW YORK

MANAGEMENT AND CONTROL

Metropolitan Districts.—Plans for formation of metropolitan water supply districts were, for the most part, held in abeyance during 1932, although this procedure has become a settled program for future realization in many sections where joint action is desirable and economical.

Holding Companies.—Holding company operation of public waterworks systems, privately owned, has met with difficulties in some cases, due to the financial stringency, and return of water works by holding companies to original owners is underway in one or two instances. It is probable that the movement of forming holding companies, in general, will not regain any marked momentum for several years.

State Supervision of Water Rates.

—A law was enacted in 1932 placing supervision of rates of private water companies in New York State under the control of the Public Service Commission.

Reforestation of Watersheds.—A basis for an extensive study of reforestation as affecting erosion-stream-flow and water supplies has been set up by the Leavitt Amendment to the McSweeney-McNary Forest Research Act. Under this amendment an annual expenditure of \$500,000 has been authorized for a nation-wide study of this problem. It is necessary that funds be appropriated for each region and for each project to be studied, but a general program has thus been established which should

supplement and widen the work done heretofore by the several states which have undertaken remedial measures. The extended drought of 1930 and the drought of lesser effect during 1932 have emphasized the value of stream-flow conservation measures, especially since many regions in the northeastern section of the country are so thickly populated with consequent heavy water supply demands from many municipalities as to render difficult the procurement of additional sources.

Drought Conditions.—Water supplies were affected in marked degree in some regions during the summer, especially in the east, by a drought requiring, in some instances, a limitation of consumption, although adverse conditions in this respect were not comparable to those present during the drought of 1930.

CONSTRUCTION

Extent.—Construction fell off considerably during the year, much below the low level reached in 1931. Projects under construction, such as the Cobble Mountain (Springfield, Mass.), the Swift and Ware Rivers project (Boston) and the Hetch Hetchy (San Francisco) and several other large developments were carried out. Very few new construction plans were put into effect.

New Projects.—Considerable impetus to new construction plans has been given by approval by the Reconstruction Finance Corporation of applications for loans by municipalities, particularly in the middle west and in

STREET AND HIGHWAY TRAFFIC

the southwest, for water supply purposes. Such projects meet the requirements of the law governing the action of the Corporation in that they are self-liquidating. Committees from engineering societies have aided largely in laying the basis for government assistance in waterworks construction and other public works, thus insuring unemployment relief and at the same time procuring public utility betterments at a time of very low cost.

WATER SUPPLY TREATMENT

The use of activated carbon in powdered form at filter plants has been extended remarkably during the year. Such wider use and the many favor-

able reports as to correction of troubles from taste, odor and color have apparently fixed this process as a permanent adjunct to filtration in a much shorter time than most new methods are adopted. The amount of alum needed for coagulation has been materially reduced according to some reports by the activated carbon treatment of the water. The use of the chloramine treatment has been extended. Increased attention is being given to the clarification of water before coagulation and filtration to improve the effectiveness of the process as well as economy in operation. Valuable studies are being continued in regard to filter media.

STREET AND HIGHWAY TRAFFIC

BY ERNEST P. GOODRICH

CONSULTING ENGINEER, NEW YORK CITY

TRAFFIC QUANTITY

During 1932 the general economic condition of the United States affected street and highway traffic and traffic engineering in the same way in which it applied to other social activities. The reduction in business curtailed commercial traffic, while reductions in salaries and wages reduced the movement of pleasure vehicles. Unofficial reports showed a diminution in the number of automobiles registered in almost every state. This reduced registration is estimated at approximately 7½ per cent for the country as a whole, the Holland Tube travel having fallen off 8 per cent. The reported sales of gasoline for automobile use also showed curtailment to not quite the extent estimated for the reduction of the vehicles in use. Compared with corresponding months in 1931, the reduction in gasoline consumption varied from 1.3 per cent for January, 1932, to 14 per cent for July, and for the first eight months showed a cumulative reduction of 6.7 per cent. Comparing this figure with the estimated reduction in registration, an average increased consumption is shown by each vehicle registered. This indicates

a slight increase in probable mileage per registered vehicle. However, with nothing except crude estimates of the number of vehicles registered, this conclusion may be open to some question. This is because of the fact that the accident reports showed an even larger drop than the registration as to the number of fatalities for the first eight months of the year, compared with 1931. The decrease amounted to approximately 12 per cent. Obviously, this might have been due to greater care in operation, produced by the intensive "safety" propaganda which was continued, or, possibly, also through the economic incentive which dictated greater care in vehicular operation, so as to reduce insurance rates and diminish accident claims.

SAFETY

Construction and Design.—Safety matters received much study. New designs for street car loading platforms and safety zones were evolved. More care was incorporated in the design and construction of highways, looking primarily to the inclusion of such safety features as pavement surfaces

of a greater non-skid quality, the employment of pavement strips of dissimilar colors for adjacent lanes, the incorporation of prominent lines and markings in concrete pavements by the use of white Portland cement, the use of painted pavement markings of large letters specially designed to provide clarity of vision to motorists for the better direction of their movements, better quality and design of direction signs, the development of better traffic paints one of which was guaranteed to dry in six minutes, and marked improvements in the mechanisms of traffic control devices. Studies were made by special committees of various organizations of such details as larger curb radii at street intersections, pavement crowns and other details. Special committees were also appointed to undertake the revision of the standard codes on signs, signals and markings.

Accident Prevention.—Further accident prevention activities included the psychological examinations of accident-prone drivers and their special education, notable activities along this line having taken place in Pittsburgh. A compilation of accident statistics was made with special reference to the stringency of law enforcement in many states. These studies indicated clearly that the accident incidence varies inversely with the degree of enforcement. A series of cash prizes aggregating \$10,000 was offered by an oil company to the cities which showed the safest traffic conditions for a twelve month period. A nation-wide traffic safety contest between municipalities was inaugurated by the National Safety Council. Michigan carried on research work to determine the best methods of making icy pavements safe for traffic, by the use of ashes, sand, calcium chloride and other devices. Special studies of the proper lighting of vehicular underpasses were made, primarily directed to the reduction of driving hazards through large tunnels. Continued studies of street and bridge night lighting for the improvement of traffic conditions were made, and some installations were completed.

TRAFFIC SURVEYS

The making of comprehensive traffic surveys was continued. Many of these, such as that in Rochester, are a part of the annual programs of local organizations. Many other such surveys were made with the object of creating made-work for unemployed, such as those in Wilmington, Del., Trenton, N. J. and Nassau County, N. Y. Surveys were made for special projects or to study certain conditions. Night parking, for instance, was studied in Washington, D. C. A series of handbooks was started, (the first one actually published) for the assistance of those who might desire to make such comprehensive traffic surveys. This work was done through the cooperation of several national organizations. Cleveland commenced to materialize the traffic survey work done over several years, through the actual creation of plans and the initiation of projects. The Federal Bureau of Public Roads initiated a program of traffic research which includes, among its main headings, road construction details, signs and markings, vehicle construction details, speed regulations, traffic movement regulations, pedestrian protection, accident causes, and a number of miscellaneous matters. Specialists were secured by the Bureau to carry on these researches.

PARKING

A survey and analysis was made in Los Angeles of curb-parked cars with special reference to the theoretical real estate value of the space occupied by the car, the actual value of the purchases made by the occupants while the car was parked, parking time, the space available for parking both on the street and in special parking lots in comparison with the parking demand, and of other factors. Further attempts were defeated in Chicago to substitute limited-time parking for the no-parking restrictions which had been found successful in the Loop district. Parking

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"machines" were designed and constructed, and many projects were planned which included provision of parking spaces in buildings for their tenants. The city of Yonkers projected a large municipal parking area, of a comprehensive nature developed after careful research.

CONSTRUCTION WORK

Many miles of single lane concrete pavements were laid in such widely separated states as Illinois and Maryland on highways of a rural nature, or where traffic was not sufficiently heavy to require the usual double lane type heretofore considered essential. Grade separation studies were continued in many jurisdictions, those in Los Angeles County being of special interest, while several notable examples were carried into construction. The approaches of the Cincinnati Union Station contained many interesting features, while the elevated section of the Lincoln Highway from Jersey City to Newark, N. J., was opened for traffic, together with additional sections of the west side elevated highway in New York City. The Lincoln Highway improvement is the longest and most costly in the country. Rapidity of construction work was improved by the use of quick setting cement so as to reduce traffic detours, delays, accidents and costs.

MISCELLANEOUS

The "steady-flow" system of traffic regulation was incorporated in several street improvement plans. This system largely precludes intersecting lines of traffic, substituting the weaving of vehicles around open spaces.

Traffic Signal Types.—A study was made in one city of the fundamental economics of different types of traffic signals. This work indicated that the least delay and best performance under the conditions studied was found in connection with traffic actuated devices. Taxicab regulations were studied intensively by the American Electrical Railway Association, special note being included in this work as to the relationship of the taxicab to the causes of street congestion and to accident incidence.

Filling Station Problem.—The president of one city planning group made a study of the problem of the filling station. Among several conclusions reached by him, one was to the effect that at least 75,000 of the 124,000 filling stations in the country could be eliminated, with a resulting benefit to traffic and to the stations themselves.

The American Institute of Traffic Engineers increased its activity and importance, becoming international in scope, through a widened geographical membership.

ELECTRIC LIGHT AND POWER

By G. F. WITTIG

STATISTICAL EDITOR, *Electrical World*

GENERAL SURVEY

Past Conditions.—Conditions in the industry devoted to electric light and power service are intimately connected with the general industrial and financial conditions prevailing in the country. In former years the growth of manufacturing activities, the progressively increasing use of electric power in productive industry, the ever-expanding use of electrical appliances in the home and the extension of serv-

ice to larger and larger numbers of families have been reflected in a steady rise of energy consumption and revenue, calling always for more capacity in power plants, the building of transmission and distribution circuits and other elements constituting the electric supply system. This process in turn necessitated the investment of new capital running into hundreds of millions of dollars annually.

During 1930 and 1931 building con-

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tinued, though at a reduced rate. This was partly to meet local needs for increased facilities, to improve distribution circuits, as for instance by putting them underground, and to secure further economies of operation by extending high tension transmission circuits, and partly in anticipation of a possible rapid increase in loads when manufacturing activity should resume its former pace. Provision for this latter contingency was necessary because of the very considerable time required for the construction of a power plant after the need for it has become apparent. During the two years following 1929 the changes in energy output and in revenue were comparatively slight; decreases occurred mainly in wholesale power sales but these were in large measure compensated by the greater use of energy for domestic purposes.

Current Changes.—The year 1932 brought a further large reduction of nearly 20 per cent in the use of energy for industrial operation, accompanied by a smaller decrease in other uses, except domestic. The latter increased about 2 per cent, but, because of decreasing rates, the corresponding revenue was somewhat smaller. The net result for the industry as a whole was a decrease of 10 per cent in energy generated and of 7 per cent in gross revenue. Operating and maintenance expenses declined 8 per cent but the large payments for taxes, approximately 10 per cent of the gross revenue, and the large fixed charges entailed by the investment in plant and equipment reduced the net income by a much greater percentage. Unlike the majority of manufacturing industries, the capital invested in electric light and power systems greatly exceeds the annual income. Even in normal years the ratio of the former to the latter is about 5 to 1. The present investment is approximately \$12,600,000,000, the gross revenue as closely as could be estimated before final statistics for the year were available was less than \$2,000,000,000. Taxes in 1931 were \$210,000,000, according to a survey made by the Statistical Department of the National Electric Light Association. The

amount in 1932 probably did not differ greatly from this figure.

INDUSTRIAL OPERATION

Energy Sales.—The effect of industrial and business conditions during 1932 is shown in greater detail in the accompanying table, which gives the energy sales in billions of kilowatt-hours, classified by major groups of consumers, with corresponding figures for the two preceding years. Data for 1932 are estimated on the basis of 10 months' operations.

	1930	1931	1932
Domestic	11.0	11.7	12.0
Retail commercial.....	13.9	13.5	12.9
Wholesale commercial..	41.6	38.5	31.0
Municipal and misc.....	2.7	3.0	3.0
Railway	5.6	5.2	4.7

Compared with 1929, the peak year, sales to users of large amounts of energy for power and light, designated as "wholesale" for brevity, have decreased by 30 per cent. In the main this item represents industrial use. The diminution in energy consumption so vividly reflects the declining demand for manufactured goods during the past three years that comment would be superfluous. Variation in small commercial sales for power and light, "retail," largely for store and office lighting, was less pronounced. Domestic sales alone increased in 1932.

Decrease in Generation.—Corresponding to the decreased consumption the energy generated in central stations has during the past several years been decreasing. Until 1929, so far as available records show, the only interruption to the steady and rapid increase occurred in 1921. The maximum year's output was about 91.4 billion kilowatt-hours. This fell, in the next year, to 90, then to 86.3 and in 1932 to 77.5 billions. The difference between total output and the sum of sales represents chiefly the losses in transmission and transformation, plus what was used by power companies for their own purposes. Late in 1932 there were evidences of recovery, in that the disparity compared with 1931 was gradually diminishing.

ELECTRIC LIGHT AND POWER

Revenue.—Gross revenue was at a maximum in 1930, \$2,151,000,000. It declined slightly to \$2,125,000,000 in 1931 and further, to an estimated total of \$1,979,000,000 in 1932. Corresponding operating and maintenance expenses were \$946,000,000, \$914,000,000 and \$840,000,000. The figures are quoted from *Electrical World*. These are current expenses and do not include taxes, depreciation or interest charges.

Customers.—The number of customers, 24,227,000 at the end of October, had decreased by 260,000 since the beginning of the year. 19,910,000, or four out of five, were domestic consumers.

DECREASE IN RATES

The downward trend in the average rate per kilowatt-hour paid by domestic consumers continued. For the year 1931 this average was 5.78 cents, according to statistics by the National Electric Light Association. For the twelve-month period ended October, 1932, it was 5.60 cents. This is 35 per cent under the average for 1913. The present average monthly bill is \$2.80, the average annual energy consumption 600 kw.-hr., or about $2\frac{1}{4}$ times as much as in 1913.

PHYSICAL EXPANSION

During the decade 1920-1930 the demand for energy mounted so steadily that a yearly increase approaching 2,000,000 kilowatts in generator capacity was not considered extraordinary. While new construction was of necessity curtailed it was by no means at a standstill even in 1932. More than half a million kilowatts went into operation, chiefly in additions to existing plants. Of this, 320,000 kw., in two units of 160,000 kw. each, was installed in a single power plant, the Hudson Avenue Station of the Brooklyn Edison Company. It is believed that this station now has the greatest capacity anywhere assembled in a single plant, namely 770,000 kw. or somewhat in excess of a million horsepower. A list of power plant construction projects in progress and scheduled for completion during 1933 (or later in a few instances) shows a total of 750,000 kw., equivalent to a

million horsepower. This does not include the plant at Hoover Dam, which according to recent reports will alone approximate another million. The aggregate rating of central stations is approximately 34,000,000 kw., of which 68.5 per cent is driven by steam power, 30 per cent by water-power, and 1.5 per cent by internal combustion engines.

SOURCES OF ENERGY

Production from water-power during 1932 constituted an unusually large fraction of the total output. It exceeded 40 per cent. There are two reasons for this. Increased stream flow, after two abnormally dry years, made possible an increase of 11 per cent over 1931 in hydro-electric output. Diminution of demand caused an additional reduction in the output from steam plants and consequently an increase in the ratio of hydro-electric to total energy. As an example of the inter-relationship of industries it may be pointed out that the decrease of nearly 12 billion kilowatt-hours in the energy that had to be generated from fuel corresponds to a decrease of some 9,000,000 tons of coal or its equivalent in fuel oil and natural gas.

TECHNICAL PROGRESS

Cut in Fuel Consumption.—Two technical achievements, at least, should be mentioned. One, perhaps the less spectacular though of considerable economic importance, was the further reduction in average fuel consumption per kilowatt-hour generated throughout the country. A change from 1.55 pounds of coal in 1931 to 1.51 pounds in 1932 may appear insignificant; as a matter of fact it signifies an annual saving of a million tons of coal.

Use of Mercury Vapor.—The other is the approaching completion of two installations using mercury vapor for driving a turbine, jointly with steam operation. One of these is in Schenectady, N. Y., the other in Kearny, N. J. Experience with the original installation of similar type in Hartford, Conn., points to important economies in the use of fuel.

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LEGISLATION AND REGULATION

Prominent among the topics engaging the attention of legislatures and utility commissions was the relationship between holding companies and their operating subsidiaries. Others were the rate level and the matter of merchandising by utility companies. The first was brought to the fore by the financial difficulties in which several holding companies found themselves and by the discovery of cases of borrowing by parent corporations from subsidiaries. The policy of prohibiting the merchandising of appliances by utility companies was not extended by new legislation, although bills to that effect were introduced, and in two states objection to existing prohibitory laws has been raised by interests not affiliated with utilities. Public concern in the controversy, to be reflected in legislative policy, lies essentially in weighing the expected benefits to local merchants against disadvantages in other directions.

Utility Commissions. — Changes have taken the form rather of increased activity than of the enlargement of their powers by legislation. Rate surveys have been instituted; the speeding up of cases by negotiation has received an impetus; investigations are under way as to the relations between holding and operating companies. In particular, there is a disposition to utilize existing powers to the maximum, pending additional legislation, to compel companies to justify payments to parent corporations for engineering and other services. Meanwhile the Federal Power Commission is seeking further jurisdiction over holding corporations.

FINANCIAL

New Capital.—Security issues during 1932 aggregated about \$450,000,000, according to the *Electrical World*.

Of this amount somewhat more than half was for refunding, the remainder for new work.

Stability. — The financial stability of electric light and power companies has for years been a recognized characteristic of the central station industry. Receivership for several utility corporations, notably the great Middle West Utilities Company and some of its subsidiary holding companies controlling properties in the central and eastern United States, caused widespread losses to investors and raised serious questions as to the soundness of public utility paper. It is, therefore, pertinent to point out that most of the holding companies appear to have weathered the storm successfully thus far, although, as in other industries, with serious reductions in the market price of their securities as compared with 1931. Furthermore, so far as operating companies are concerned, they have been able to maintain a satisfactory balance between income and outgo. Only a very few cases of receiverships have been reported, none of them involving important companies. Even the subsidiaries of holding companies in receivership are not themselves in financial difficulties.

This condition of solvency has been of importance in the present period of depression quite aside from the interests of the companies themselves and of investors in their securities. It has made possible the maintaining, in numerous instances, of construction programs and therefore of employment in tributary manufacturing industries, calling for the expenditure of nearly \$250,000,000. While the amount falls far short of what it has been in former years it is nevertheless in fortunate contrast with the more drastic curtailment in other branches of industry and commerce.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

DIVISION VIII

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

AMERICAN WATER WORKS ASSN., 29 W. 39th Street, New York City.	NATIONAL PARKS ASSN., 1512 H St., N. W., Washington, D. C.
INTERNATIONAL ASSN. OF FIRE CHIEFS, Police Headquarters, Philadelphia, Pa.	NATIONAL PUBLIC SERVICE ASSN., 87 Nassau Street, New York City.
NATIONAL ELECTRIC LIGHT ASSN., 420 Lexington Ave., New York City.	PARKS AND PLAYGROUNDS ASSN. OF NEW YORK, 1123 Broadway, New York City.

DIVISION IX

DEFENSE AND ARMAMENTS

MILITARY PROBLEMS OF THE UNITED STATES

BY ROBERT S. THOMAS

CHIEF CLERK, HISTORICAL SECTION, ARMY WAR COLLEGE

GOVERNMENTAL MANUFACTURING

Motivated by distressing financial conditions which have prevailed throughout the year, certain of our citizens have attacked all Government operations of a business nature, including specific War Department activities essential to national defense. Under the provisions of the National Defense Act, a mandate is imposed upon the War Department to "cause to be manufactured or produced at the Government arsenals or Government-owned factories of the United States all such supplies or articles needed by the War Department as said arsenals or Government-owned factories are capable of manufacturing or producing upon an economical basis." A dispassionate survey of War Department activities under this edict shows that it has never been interpreted to expand Government facilities in order to manufacture articles of commercial design. However, certain military requirements cannot be filled from existing commercial sources and it is, therefore, necessary that these Governmental facilities, with their specialized equipment and labor, be held intact in the interest of adequate national defense, which consideration should outweigh any idea of temporary alleviation of prevailing economic distress by turning these specialized manufacturing processes over to inadequately equipped commercial sources of manufacture.

PROCUREMENT PLANNING

Satisfactory progress continues in the development of two important plans for meeting a major emergency, —one for the procurement of munitions, the other a plan for the mobilization of industry. That for the procuring of munitions has now reached the stage where, in an emergency, the machinery of procurement can be immediately set in motion. Emphasis is continuously placed on the adaptation of Army designs to commercial manufacture, keeping in mind, at all times, necessary technical limitations. In dealing with industry, the adjusted compensation contract has been devised for the procurement of non-commercial and technical items. This form of contract insures the contractor a reasonable profit for the use of his facilities, encourages efficient and speedy production, and guards the Government against profiteering and inefficiency. Strategic raw materials, *i.e.*, those which are not obtainable in the United States in sufficient quantities to meet our needs in peace or war, have been carefully studied. In this field, it has been found practicable to substitute cotton for jute; progress has been made in developing substitutes for tin and antimony; and studies have been made to develop suitable processes for the use of the extensive low grade manganese deposits found in the United States.

MILITARY PROBLEMS OF THE UNITED STATES

DISARMAMENT

The international conference held at Geneva, Switzerland, during the year, studied formulae for effecting universal reductions in the armies of the world. Similar conferences, throughout the past decade, have dealt with the naval phases of this general problem. Sympathetic interest and popular approval has already been given by our people to any concerted effort toward scaling down armaments. However, present predominant opinion indicates that, measured by absolute and relative standards, the United States has already accomplished a degree of reduction in land forces that should serve as an example to other world powers. Concomitant with this opinion, very definite sentiment has crystallized among our citizenry against a further weakening of American military strength unless accompanied by drastic cuts in the armies of other nations of the world.

REDUCTION IN OFFICER PERSONNEL

The National Defense Act provides that the Regular Army shall consist of approximately 18,000 officers and 280,000 men. During the past decade, in the interests of immediate economy, this strength has been reduced until present appropriations are made on the basis of 12,000 officers and 125,250 men, including the Philippine scouts. On June 30, 1932, the actual figures were 12,180 officers and 119,888 enlisted men, a total figure regarded as below the point of safety. "Among the nations of the world, the United States ranks first in wealth and fourth in population, yet each of 16 others maintains a military establishment exceeding in strength the aggregate of our Regular Army, National Guard, and Organized Reserves. The largest is the French Army with its total of almost 7,000,000 followed by those of Italy and Russia in that order. The list includes even such small countries as Yugoslavia, Belgium, and Portugal." The above is quoted from the current report of General MacArthur, Chief of Staff, U. S. A., and a full

realization of its import makes particularly alarming the effect made in Congress during the past year to further reduce the commissioned strength of the Army by 2,000. In the opinion of military experts, such a move would have accomplished the disastrous emasculation of our defensive system. The War Department, supported by a majority of the press of the country, consistently opposed this movement, basing its opposition, not upon the desire to protect individual officers from a diminution of income, but upon the principle that, under existing conditions and in view of the character of our defensive structure, the number of officers is already below the minimum requirements of national security.

AMALGAMATION OF WAR AND NAVY DEPARTMENTS

This is a constantly recurring proposal and was again brought forward in the past session of Congress on the ground of effecting great economies in governmental expenditures. The bills proposed provide also for setting up a separate sub-department of Air, coordinate with and independent of the new sub-departments of War and Navy. This proposal was advanced in the face of the fact that not a single power having a navy of major proportions has to-day a unified department of national defense. Invariably, this proposal, attractive in theory, has always been rejected as inefficient, uneconomical, and futilely cumbersome. Combined tactical operations between armies and navies have been exceedingly rare in military history for, normally, their activities are widely separated. The Navy is concerned with preserving our sea communications and destroying those of the enemy; the Army seeks to defeat the hostile land force and gain the objectives laid down by the President and the Congress. In March, 1932, the French Ministries of War, Navy, and Air were combined into a Ministry of National Defense. In June, 1932, France returned to the old system, abandoning the amalgamation experiment. On

IX. DEFENSE AND ARMAMENTS

August 7, 1789, our Government, under the Constitution, established the Department of War whose Secretary was charged with duties relative to land and naval forces, ships, and warlike stores of the United States, or such other matters respecting military or naval affairs as the President should assign. But, when naval operations against France in 1798 assumed serious proportions a separate Navy Department was set up, specifically severed from the War Department. It is reasonable to assume that economy was as much a sought-after factor then as now.

THE SINO-JAPANESE SITUATION

The unreliability of treaties as guarantees of international peace was emphasized by the outbreak of war in the Far East during 1932. The outbreak was fraught with potential widespread disaster and, in America, developed a feeling of apprehension as to the adequacy of our defensive machinery. On Feb. 2, 1932, the Thirty-first United States Infantry was sent to the beleaguered Shanghai area to assist in preserving the integrity of the International Settlement. This regiment, during its five months' service there, performed its duty in keeping with the best traditions of the American Army.

PROMOTION AND PAY OF OFFICERS

Promotion difficulties can be traced, in part, to the existence of the "hump," a large group of officers commissioned during and immediately after the World War. Senior officers in this group will eventually be colonels while the juniors of the same group will still be in the grade of captain, even though all will have had substantially the same amounts of commissioned service. Officers just below the World War contingent, entering military service as second lieutenants at normal ages, would still be company officers, captains and lieutenants, up to and beyond the age of 50. Promotion in armies and navies is accomplished under three principal methods, with numerous variations and combinations. The

first is by selection and, in our Army, is applied only to the grade of general officers. The second promotion method is according to a fixed number of years of service as a commissioned officer and, in our Army, obtains in the Medical and the Chaplains' Corps. The third promotion system is by seniority. Each of these means of advancement has its specific advantages and drawbacks. In attempting to solve this problem for our Army, the General Staff is working toward a solution which will, (1) offer a reasonable degree of advancement to every officer retained on the active list, (2) maintain a satisfactory balance among grades, (3) incur no large increase in cost to the Government, and, (4) be acceptable to the large majority of officers as a system fair to all.

Pay schedules, and their modernization, have occupied considerable attention in recent years. In nearly 25 years there has been only one positive move made in this direction and that was a stop-gap compromise. General MacArthur in his annual report states concisely the crux of the whole question in these words: "Inadequate pay breeds loss of morale and efficiency and is unjust and unfair to loyal and faithful public servants. The interests of the Government and of the officer alike require a standard of remuneration commensurate with the responsibilities carried and with the character and abilities of the individual capable of performing efficiently the duties involved." The operations of the "Economy Act," in effect now, have caused Army and Navy officers to suffer a greater proportionate loss than other government officials in the same pay ranges. This was caused by an arbitrary cut in allowances as well as in pay, making the total loss of pay excess of the customary 8.3 per cent reduction. Added to this was the suspension of automatic pay increases, provided in the 1922 pay law, based on length of service. It is to be hoped that, with the return of normal financial conditions, the present inadequate pay schedules will be revised upwards.

MILITARY PROBLEMS OF THE UNITED STATES

MECHANIZATION

The problem of adapting the power of motor-propelled vehicles to the demands of battle engrosses military men the world over. Its ideal solution would serve the ends of increasing fighting strength while conserving man-power. The term "motorization" denotes the use of motor-driven vehicles solely for the transportation of troops and supplies, while by "mechanization" is meant the employment of such vehicles on the battlefield as actual weapons. During the past fiscal year, the Army purchased seven of the "Christie" combination wheel and track type tanks at a cost of \$262,000 and twelve armored cars of the most modern type at an approximate cost of \$190,000. These acquisitions but scratch the surface of the problem, for, it will be recalled that when the Armistice was signed in 1918 our Government had arranged for the production of 19,000 tanks, should the World War continue into the year 1919. World War tanks, in comparison with the present day machines, were clumsy, slow, awkward in handling, and mechanically unreliable. To obviate these drawbacks has been the constant aim of technical experts, for the success of military units in established factors,—speed in movement and power in action. Along with this advance it must be borne in mind that progress is constantly being made in the production of bullets with extraordinary armor-piercing qualities. This fact alone may revolutionize the entire theory of mechanization. The present aim of the Army is, therefore, the production of the best in pilot models, putting these to annual tests, the results of which can be employed in teaching all arms of the military service the inherent capabilities of these machines along with an accurate knowledge of their weaknesses. The development of armored cars naturally presents fewer difficulties than the design and construction of tanks and marked progress is being made in this field.

ORGANIZED RESERVES

The strength of the Officers Reserve Corps is now approximately 84,000, so that there is on the active list, in good standing, about two-thirds of the procurement objective sought by the General Staff. Whereas this organization, at the outset, was made up of World War officers, it has now but one-third of that class in its membership. The Reserve Officers' Training Corps provides an ample supply of officers for the Infantry and Cavalry Reserve but not enough for the demands of the Air Corps and the Field and Coast Artillery. During 1932, there was a marked increase in the demand for training by Reserve officers. This demand was largely met by an extension of facilities already provided. At Fort Leavenworth alone 132,000 extension-course lessons were prepared for Reserve training. Limitation of funds precluded the satisfaction of a great part of the demand for active, outdoor training in the summer months. It is hoped that the unusual amount of work done by Reserve officers in 1932 augurs for the retention of a greater percentage of Reserve officers at the expiration of their present 5-year commissions than has obtained in the past.

NATIONAL GUARD

Along with other components of the Army, the National Guard suffers from a lack of modern motor transportation, still carrying on its accounts many obsolete gasoline propelled vehicles. No instance of use of the National Guard as a Federal force occurred during the year but these troops were used extensively within the several states. The Secretary of War in his Annual Report, commenting on the National Guard, states, "For this component of the Army the fiscal year has been one of stabilization and of constant improvement in training." It will probably be a long time before succeeding Secretaries can make a similar announcement, unless existing policies are changed and agencies of

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national defense are not required to function under the drastically reduced appropriations now in force.

WORLD WAR RECORDS

The World War Division of The Adjutant General's office made considerable progress during the year in sorting and filing personnel records of individual soldiers while the Historical Section of the Army War College has completed, to date, the examination of nearly 60,000 drawers of records. The purpose of this work is the compilation of an index of

selected documents of historical value to permit their ready access to scholars, or their subsequent assembly for publication. The activities of these agencies re-emphasizes the need for proper care and housing of the priceless records in the custody of the War Department, many of them at present stored in non-fireproof buildings. The completion of foundation work for the National Archives Building during the year lends encouragement to the hope that the record-housing problem will soon be solved.

ORGANIZATION OF THE ARMY

BY ROBERT S. THOMAS

CHIEF CLERK, HISTORICAL SECTION, ARMY WAR COLLEGE

WAR DEPARTMENT

The War Department, the managing agency of the Army of the United States, is presided over by the Secretary of War, a civilian answerable directly to the President. The Secretary (Patrick J. Hurley) is assisted by the Chief of Staff (General Douglas MacArthur) who supervises the military functions; by the Assistant Secretary (Frederick H. Payne) who has charge of the supply, real estate, and war industrial plans; and by another Assistant (F. Trubee Davison) who is responsible for Military Aeronautics. Under this combined direction operate the General Staff and the various arms and branches of the Army. The chiefs of these several arms and branches transmit advice to the Secretary of War through the Chief of Staff and the Deputy Chief of Staff (Major George V. H. Moseley).

THE GENERAL STAFF

Composition and Duties.—The General Staff is composed of officers who are selected from all arms and branches of the service. By extended training and specialized schooling, these officers are developed professionally to comprehend all phases of

the general problems submitted to them for study. From these studies, they are required to present to their superiors broad and unbiased conclusions for the best interests of the service. On the other hand, the chiefs of the combatant branches and the supply and administrative departments are specialists whose force is trained to give technical and specific advice to the Secretary of War, through the Chief of Staff, concerning particular conditions that confronted them. None of the officers of the General Staff or heads of arms or departments enjoys the right to command. The duties of each are advisory, supervisory, or administrative. The chain of command is direct from the President of the United States to the Corps Area Commanders in manipulating the Army of the United States. The Secretary of War, however, may give orders in the name of the President to the nine areas of control in the United States proper and to the three other areas beyond the continental limits.

Command Divisions.—The General Staff consists of five divisions composed of officers of the Regular Army, National Guard, and Organized Reserves. The G-1 Division (Brig. Gen.

ORGANIZATION OF THE ARMY

Andrew Moses, Assistant Chief of Staff, G-1) is concerned with personnel, the man-power of the Army and nation. The G-2 Division (Col. Alfred T. Smith, Assistant Chief of Staff, G-2) is concerned with world-wide information, collecting, evaluating, and employing it for the good of the service. The G-3 Division (Maj. Gen. Edgar T. Collins, Assistant Chief of Staff, G-3) is concerned with the operations and training of the Army. The G-4 Division (Maj. Gen. Robert E. Callan, Assistant Chief of Staff, G-4) is concerned with the housing and maintenance of the Army. The War Plans Division (Brig. Gen. Charles E. Kilbourne, Assistant Chief of Staff, W. P. D.) is concerned with plans for adequate national defense, both at home and in our island possessions.

ADVISORY BODIES

Combatant.—The chiefs and officers of the combatant arms and the heads of departments and services also function as advisors to the Secretary. The combatant branches, with their heads, are: Infantry, Maj. Gen. Stephen O. Fuqua; Cavalry, Maj. Gen. Guy V. Henry; Field Artillery, Maj. Gen. Harry G. Bishop; Coast Artillery, Maj. Gen. John W. Gulick; Air Corps, Maj. Gen. Benjamin D. Foulois; Engineer Corps, Maj. Gen. Lytle Brown; Signal Corps, Maj. Gen. Irving J. Carr.

Non-combatant. — The non-combatant branches, with their heads, are: The Adjutant General's Department, Maj. Gen. Charles H. Bridges; The Inspector General's Department, Maj. Gen. John F. Preston; The Judge Advocate General's Department, Maj. Gen. Blanton Winship; The Quartermaster Corps, Maj. Gen. John L. DeWitt; The Finance Department, Maj. Gen. Frederick W. Coleman; The Medical Department, Maj. Gen. Robert U. Patterson; The Ordnance Department, Maj. Gen. Samuel Hof; The Chemical Warfare Service, Maj. Gen. Harry L. Gilchrist; The Bureau of Insular Affairs, Brig. Gen. Francis LeJ. Parker; and The Militia Bureau,* Maj. Gen. George E. Leach.

CORPS AREAS AND DEPARTMENTS

For command and control, the United States and its possessions are divided into Corps Areas and Departments as follows: First Corps Area, including Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, and Connecticut, commanded by Maj. Gen. Fox Conner; Second Corps Area, including New York, New Jersey, Delaware, and Puerto Rico, by Maj. Gen. Dennis E. Nolan; Third Corps Area, including Pennsylvania, Maryland, Virginia, and District of Columbia, by Maj. Gen. Paul B. Malone; Fourth Corps Area, including North Carolina, South Carolina, Georgia, Florida, Alabama, Tennessee, Mississippi, and Louisiana, by Maj. Gen. Edward L. King; Fifth Corps Area, including Ohio, West Virginia, Indiana, and Kentucky, by Maj. Gen. Hugh A. Drum; Sixth Corps Area, including Illinois, Michigan, Wisconsin, Jefferson Barracks and Arcadia Target Range in Missouri, by Maj. Gen. Frank Parker; Seventh Corps Area, including Missouri (Arcadia Range and Jefferson Barracks excepted), Kansas, Arkansas, Iowa, Nebraska, Minnesota, North Dakota, and South Dakota, by Maj. Gen. Johnson Hagood; Eighth Corps Area, including Texas, Oklahoma, Colorado, New Mexico, and Arizona, by Maj. Gen. Edwin B. Winans; Ninth Corps Area, including Washington, Oregon, Idaho, Montana, Wyoming, Utah, Nevada, California, and Alaska, by Maj. Gen. Malin Craig; the Hawaiian Department, by Maj. Gen. Briant H. Wells; the Philippine Department, by Maj. Gen. Ewing E. Booth; and the Panama Canal Department, by Maj. Gen. Preston Brown. These areas and departments are subdivided into tactical divisions and brigades.

ARMY STRENGTH

The strength of the Army of the United States on June 30, 1932, was: Organized Reserves, 128,003 officers (including 13,167 who held commis-

*Although the National Guard is, of course, a combat organization, the Militia Bureau is here properly listed under the heading "Non-Combatant."

IX. DEFENSE AND ARMAMENTS

TABLE SHOWING THE STRENGTH OF THE REGULAR ARMY OF THE UNITED STATES JUNE 30, 1931, AND JUNE 30, 1932, AND LOSSES DURING THE FISCAL YEAR INTERVENING

Arm or Service	Strength, June 30, 1931		Strength, June 30, 1932		Losses—Enlisted men										Total	Enlisted men returned from desertion	
	Officers	Enlisted men	Officers	Enlisted men	Retired	Discharged				Died				Deserted			Dropped
						Relieved from active duty	Expiration of service ¹	Disability	By sentence of general court-martial	Other causes	Of disease	Of accident	Drowned					Suicide	Homicide
General officers of the line.	67		67														
General Staff Corps.	208		226														
Adjutant General's Department.	96		90														
Inspector General's Department.	41		38														
Judge Advocate General's Department.	95		92														
Quartermaster Corps.	704	7,444	710	7,415	56	2,159	77	64	617	20	6	2	1	2	123	39	3,166
Medical Department.	1,223	6,612	1,211	6,615	23	1,789	100	63	623	13	7	2	3		214	42	2,877
Finance Department.	119	369	120	380	2	84	1		18	1							109
Corps of Engineers.	412	4,326	421	4,125	15	1,146	63	42	333	7	6	1	1		97	11	1,721
Ordnance Department.	275	2,179	271	2,180	29	539	25	22	177	4	3	1	1		29	3	833
Signal Corps.	202	2,575	201	2,473	6	672	21	16	246	1	2				45	8	1,018
Chemical Warfare Service.	77	451	73	425	1	77	1		36	1					6		26
Bureau of Insular Affairs.	4		4														122
Chaplains.	120		119														
Professors, U. S. Military Academy.	8		8														
Cavalry.	577	7,692	581	7,235	54	2,500	85	170	505	22	14	1	2	6	340	63	3,762
Field Artillery.	945	14,815	968	13,659	26	3,651	174	195	1,307	29	23		8	1	583	140	6,137
Coast Artillery Corps.	677	12,711	713	12,284	70	3,504	226	127	1,794	27	8	3	6	1	220	20	6,006
Infantry.	2,265	40,569	2,260	37,913	166	11,022	585	394	4,121	93	47	8	17	7	1,107	412	17,979
Air Corps.	1,291	13,194	1,281	13,369	14	2,964	128	91	1,742	25	41	2	7	6	186	28	5,234
Detached lists.	2,693	6,073	2,654	5,344	96	1,234	49	29	217	25	4	1		1	59	1	1,716
Total, less Philippine Scouts . . .	12,099	119,010	12,108	113,417	558	31,341	1,535	1,213	11,736	268	163	18	47	24	3,010	767	50,680
																	3,054

ORGANIZATION OF THE ARMY

[illegible]

¹ Includes 3 honorably discharged.

IX. DEFENSE AND ARMAMENTS

sions in both the National Guard and the Reserve Corps) and 4,872 enlisted men; National Guard, 13,345 officers, 204 warrant officers, and 173,863 enlisted men; Regular Army, 13,287 officers (including 72 Philippine Scouts and 134 Regular Army and Philippine Scouts, Retired, who were on active duty); 973 warrant officers; and 119,913 enlisted men (including 24 retired on active duty and 6,472 Philippine Scouts).

GEOGRAPHICAL DISTRIBUTION OF THE REGULAR ARMY

JUNE 30, 1932

(Figures include retired personnel on active duty)

Countries, etc.	Commissioned Officers	Warrant Officers	Enlisted Men	Total
In the continental United States:				
First Corps Area.....	437	61	3,825	4,323
Second Corps Area ¹	1,158	109	11,063	12,330
Third Corps Area.....	1,954	126	11,415	13,495
Fourth Corps Area.....	1,197	78	10,696	11,971
Fifth Corps Area.....	565	68	3,568	4,201
Sixth Corps Area.....	598	59	4,985	5,642
Seventh Corps Area.....	962	61	6,912	7,935
Eighth Corps Area.....	1,794	135	19,703	21,632
Ninth Corps Area ²	1,070	122	11,441	12,633
Total in continental United States.....	9,735	819	83,608	94,162
In Hawaiian Department.....	757	52	13,466	14,275
Panama Canal Department ³	418 ³	38	9,537	9,993
Alaska.....	10	1	309	320
Puerto Rico.....	52	4	938	994
Philippine Department:				
Regular Army.....	570	55	4,639	5,264
Philippine Scouts.....	63	.....	6,472	6,535
China (U. S. Army troops).....	45	2	719	766
France ⁴	26	1	.....	27
Japan ⁵.....	.....	1	.....	1
Miscellaneous ⁶	638	.....	225	863
Grand total.....	12,314	973	119,913	133,200

¹ Excluding Puerto Rico.

² Excluding Alaska.

³ Includes Panama Civil Government.

⁴ American Graves Registration Service and escorts of gold-star mothers and widows visiting American cemeteries in Europe.

⁵ Transport quartermaster, Nagasaki.

⁶ Includes military attachés, students abroad, and personnel on leave and en route to and from overseas garrisons.

ACCOMPLISHMENTS OF ARMY PERSONNEL

BY ROBERT S. THOMAS

CHIEF CLERK, HISTORICAL SECTION, ARMY WAR COLLEGE

INFANTRY

Organization.—Tables of organization for an Infantry regiment, approved Nov. 30, 1930, and tested during 1931-32, are now held in abeyance, not to become effective before July, 1933. Recent developments in motor transportation and weapons are two of the factors which prompted this action. Motor trucks are replacing animal-drawn vehicles, indicating a trend toward eventual complete motorization of the Infantry. Likewise, tests of automatic

ACCOMPLISHMENTS OF ARMY PERSONNEL

and semi-automatic weapons for Infantry have progressed to such an extent that their final adoption is almost assured.

Weapons.—Tests of several types of caliber .276 semi-automatic shoulder rifles have been completed; however, adoption of this type of weapon is dependent upon the outcome of tests with caliber .30 semi-automatic rifles. Since our machine guns and automatic rifles are all caliber .30, the advantages of this chambering for semi-automatic rifles are obvious. Seeking increased firepower without decreasing flexibility and mobility, an effort is being made to develop a light machine gun capable of handling by the foremost units of Infantry regiments. A modified Browning tank-machine gun, and the Browning automatic rifle with a bipod mount attached are undergoing tests for this purpose. The 75-mm. breech-loading Infantry mortar has been replaced by the Stokes-Brandt 81-mm. muzzle-loading mortar.

Anti-aircraft Defense.—Serious consideration has been given by the Infantry to the subject of anti-aircraft defense and basic regulations were formulated for training Infantry units in this phase of combat.

Tanks.—Adoption of the Christie tank has given the Infantry a weapon which is probably the best of its kind in the world. On the highway and across country its speed far exceeds that of any other tank and its durability and dependability have been proven in severe trials over all kinds of terrain. Three are now at Fort Benning, Ga., undergoing tests to determine specifications for 1933 models.

Motorization.—One battalion of the 29th Infantry at Fort Benning, and the service companies of twelve other Infantry regiments have been completely motorized. The battalion of the 29th Infantry is equipped with modern motor vehicles but the service companies mentioned are using antiquated trucks, remaining from war-time stock. These latter will eventually be replaced by modern equipment.

ENGINEER CORPS

Mapping.—During the year, in cooperation with the United States Geological Survey, two quadrangles were completed and three others partially completed along the International Border in Maine. For the Fire Control Area, adjacent to New York City, 92 control monuments and 265 square miles of topographic mapping were completed. Field surveys were initiated for tactical mapping at Camp Knox, Ky.; a special edition of the Fort Ethan Allen, Vt., map and a training map of Des Moines, Ia., were prepared. Camp Stephen D. Little, Fort McIntosh, and Fort Francis E. Warren were mapped and special sheets were prepared for the 1st Cavalry Division, 2d Infantry Division, 4th Brigade, and 25th Infantry for use in the 1932 maneuvers, together with 10 tactical map quadrangles in the 8th Corps Area. In the Hawaiian Islands, 7 reservations were mapped and a general map of Oahu and vicinity was prepared for the maneuvers; in the Philippines preparations were made for mapping the Baler area on the east coast of Luzon.

Fortifications.—Maintenance operations on the historical fortifications of San Juan, Puerto Rico, were resumed. A wing wall was repaired and riprap was placed at the base of the cliff at the southeast corner of El Morro at a cost of \$12,924. A survey of the historic walls and preparation of plans for their future preservation were continued at a cost of \$2,382.

CAVALRY

Mechanized Units.—Under new tables of organization for a mechanized cavalry regiment, units were collected at Fort Knox, Ky., and as "Detachment, First Cavalry (Mechanized)" was organized as a nucleus of the new regiment. The 1st and 4th Cavalry regiments were brigaded to form the 7th Cavalry Brigade (Mechanized).

Maneuvers.—Elements of the disbanded Mechanized Force from Fort Eustis marched to Fort Knox, Ky., a distance of 800 miles, within four

IX. DEFENSE AND ARMAMENTS

days. During the Cavalry School maneuvers in May, a force approximating a cavalry brigade, reinforced, marched 100 miles within 24 hours, rested briefly, resumed the march, and proceeded to an attack position in continuation of a definite tactical problem.

Experimental Organization. — To increase the firepower and mobility of the cavalry regiment and to give it additional defense against attacks of armored vehicles, a temporary reorganization of the 2d Cavalry Regiment at Fort Riley, Kan., has been authorized. The salient features of this experimental project are: (1) incorporation of a platoon of 4 armored cars in the headquarters troop, (2) the addition of a .50-caliber machine gun platoon (8 guns), in pack, to the machine gun troop for anti-armored vehicle defense, and (3) the substitution of light trucks for the escort wagons of the regimental train.

FIELD ARTILLERY

Materiel and Equipment.—In order to determine the practicability of light trucks instead of horses for divisional field artillery in the event of war mobilization, the Field Artillery Board is testing a truck-drawn battery of 75-mm. field guns. An ordinary 1½-ton truck is used to tow a French 75-mm. gun, modified for traveling at high speed by substituting pneumatic-tired truck wheels instead of the standard wooden wheels.

Horsemanship.—Battery "D," 18th Field Artillery, stationed at Fort Riley, Kan., made an endurance march of 100 miles in a total elapsed time of 23½ hours over average Kansas roads. This accomplishment is fully appreciated when it is realized that the normal daily length of march for a horse battery is from 15 to 25 miles. Preparatory to this grueling test, the battery spent six weeks conditioning its animals which accounted for their splendid condition at the conclusion of the march.

Awards. — The Knox Trophy, awarded annually by the Sons of the Revolution in Massachusetts for the most efficient Regular Army bat-

tery, was won by Battery "D," Third Field Artillery.

COAST ARTILLERY CORPS

Organization. — In continental United States, the bulk of seacoast artillery personnel has been concentrated in six active harbor defenses. The Corps' missions are, (1) the attack of enemy naval vessels by means of artillery fire and submarine mines and, (2) the attack of enemy aircraft by means of fire from the ground. To accomplish these, the Corps is organized into Harbor Defense, Tractor Drawn, Railway, and Anti-aircraft Artillery units.

Maneuvers. — Experimental long-range firing with 16-inch guns was held in the Hawaiian Department, April and May. Two 14-inch guns were moved from the Pacific to the Atlantic end of the Panama Canal, emplaced, and used in target practice. An exercise in employing railway artillery in defense of the Atlantic coastline was conducted in the Second Corps Area in May, a tactical problem was solved successfully by a battalion of the 52d Coast Artillery which left Fort Hancock at 8:00 A. M., traveled 190 miles to Wildwood Crest, N. J., by nightfall, and emplaced, ready for firing.

Searchlight and Sound Locator Tests.—Tactical exercises in this field were conducted at Fort Humphreys, Va., in cooperation with the Air Corps. An air force, employing bombardment, attack, and pursuit groups, operated against a composite searchlight battery composed of detachments from three anti-aircraft regiments.

Materiel.—In cooperation with the Air Corps and the Ordnance Department, a suitable instrument is under development to control the fire of long range guns by air observation above. A new subaqueous sound ranging device, constructed by the Signal Corps, is undergoing testing and some progress has been made by the Sperry Gyroscope Company in developing an electrical transmission system and data computer for long range seacoast guns.

ACCOMPLISHMENTS OF ARMY PERSONNEL

SIGNAL CORPS

Army Radio Net.—New radio installations were begun or completed during the year at Washington, San Francisco, Panama, Port Allen, Territory of Hawaii, Fort Benning, Barksdale Field, La., Maxwell Field, Ala., Rockwell Field, Calif., and Mitchell Field, N. Y. In the last decade use of Signal Corps communications, exclusive of the Alaskan system, has increased from 19,790 messages, containing 741,027 words, in 1922, to 524,411 messages, containing 25,884,165 words, in 1932.

Alaskan System.—The new high frequency radio installations begun in 1931 were completed. The cable-ship *Dellwood* was placed in reserve, her only service being under temporary commission, June, 1932, to store reserve submarine cable in Puget Sound, preparatory to the sale of the ship by the United States Shipping Board. Thirty-six stations of the Alaskan system functioned in 1932, handling 198,696 commercial messages, containing 7,862,397 words, and 167,082 governmental messages with a total of 3,847,567 words.

Army Amateur Radio System.—This system steadily increased in efficiency. Numerous successful inter-corps area tests were held. The system was mobilized for every flood and storm of any appreciable consequence and, in six separate instances, furnished emergency communication when commercial facilities failed.

Pigeon Service.—The importance of this auxiliary means of communications in war, warrants its retention in our peace-time Army. Excellent strains of pigeons are being bred and trained at Signal Corps lofts.

Procurement Planning.—Planning for the procurement of wire and wire products broadened in scope to include the requirements of all Army and Navy supply services. A complete survey of all wire-producing and fabricating facilities in the United States is under way, with the cooperation of the wire industry. Eight Regular Army and 35 Reserve officers participated in a Signal Corps supply test from May 16th to 27th. Its purpose was to train Reserve offi-

cers, assigned to signal supply, in the operation of the present supply plan, as well as to determine the adequacy of the plan itself.

Photographic Service.—The outstanding activity of this service is the production of training films. One sound film was finished, two more are nearly complete, and three others are in various stages of scenario preparation. Progress in this activity is necessarily slow, in that sound has added another time consuming element and that the whole field of educational talking films is a new one. Liaison is maintained with newsreel companies to facilitate their work in recording military events. The total number of loans of silent films during the year from corps area laboratories and the Photographic Laboratory, Army War College, was 4,771.

Telephone Systems.—The Signal Corps maintained 142 Government-owned switchboards with 29,253 telephones connected thereto. Twenty-two switchboards, with 1,742 telephones were rented from commercial companies. By special statutory authority in the use of funds for the relief of unemployment, all 1932 construction was capable of early completion. The principal telephone construction activities were at Fort Sam Houston, Randolph Field, and Fort Bliss, Tex.; Fort Benning, Ga.; Maxwell Field, Ala.; Langley Field, Va.; Fort George G. Meade, Md.; Selfridge Field, Mich.; Albrook Field, Canal Zone; and Wheeler Field, Hawaii.

Meteorological Service.—Thirty-two Signal Corps meteorological stations are in operation in the United States, two in Hawaii, one in the Philippines, and one in Panama. The Air Corps is the principal peace-time user of this service but its data are also used by the Field and Coast Artillery, Chemical Warfare Service, and Ordnance Department.

THE MILITIA BUREAU

Organization.—The reciprocal military relationship existing between the state and the Federal Governments is administered through a bureau of the War Department called the Militia Bureau, whose chief is a

IX. DEFENSE AND ARMAMENTS

National Guard officer holding a commission as Major General in the Officers' Reserve Corps of the Army of the United States, and 30 other officers including three detailed for three years from the National Guard. For 1932 the authorized strength of the National Guard was fixed at 190,188 and the actual strength as of June 30 was 187,413. The 834 headquarters and 3,191 units included 18 infantry divisions in various stages of completeness, 9 brigades and 8 miscellaneous units of cavalry, 25 regiments of coast artillery (12 harbor defense, 3 tractor drawn and 10 anti-aircraft) in various stages of completeness, and miscellaneous corps, army and other special units.

Training.—The legal minimum training requirements are 48 armory drill periods of at least 1½ hours each and 15 days' field training per year. The troops are paid by the Federal Government: for the period of field training at the same rate as for like grades in the regular army, and for each armory drill at approximately 1/30 of the monthly pay of like grades in the regular establishment. The average attendance at armory drills during the fiscal year 1931-32 was 187,413 all ranks, and at field training camps, 180,622. Training is supervised by officers of the regular army, and supplemented by attendance at service schools and by correspondence lessons. During the year ending June 30, 1932, applications to attend service schools numbered 691 officers and 310 enlisted men, of whom 264 officers and 121 enlisted men actually attended. Extension courses were taken by 8,517 officers and 8,529 enlisted men. As in 1931, twenty enlisted men qualified for admission to the United States Military Academy. In addition to serving in the Militia Bureau, a limited number of National Guard officers are detailed to duty with the War Department General Staff to assist in the preparation of policies and regulations affecting the National Guard. In both cases these National Guard officers bring to the War Department the viewpoint of the citizen-soldiery.

Aviation.—There are 19 observation squadrons in the National Guard. During the year 13 of these squadrons were equipped with Douglas 0-38 observation planes with Pratt-Whitney, Hornet-powered, 1690 h. p. engines, leaving 6 squadrons equipped with Douglas 0-24 observation planes with Liberty motors. In training the outstanding improvement has been increased efficiency in the carrying out of tactical missions.

Civil Contacts.— Approximately 10,000 officers and men were called out by 21 states to assist the state civil authorities in providing relief for sufferers from tornadoes, floods and other disasters, fighting fires, searching for men lost in the woods, preserving order, protecting prisoners, capturing escaped convicts, guarding Federal property, supplying emergency transportation, conducting aerial surveys, enforcing tuberculin tests, and in a wide variety of other duties.

THE ORDNANCE DEPARTMENT

Functions.—The primary functions of this department are, (1) to design, develop, manufacture or procure munitions for the use of our Army and, (2) to issue and service these munitions. Under munitions are included cannon, small arms, ammunition of all kinds, bombs, fire control instruments, tanks and other combat vehicles, and many other miscellaneous items needed for Army training and operations.

Organizations.—The Ordnance Department is divided into the manufacturing service and the field service; the first maintains a force of engineers and draftsmen for design purposes and six manufacturing arsenals; the second is charged with stocking and issuing all munitions and operating shops and repair units for equipment maintenance. Twenty-four depots scattered throughout the United States and its possessions comprise this field service.

Technical Staff.— This section maintains technical liaison with the various ordnance services and other branches of the Government and di-

rects and analyzes the proof testing of all munitions before approval for manufacture or issue to troops.

Weapons and Munitions.—Proving ground tests have shown the superiority of demolition bombs of the so-called one piece type of manufacture. Efforts to improve powder compositions so as to eliminate flash in major caliber weapons are being continued and laboratory studies in the recrystallization of mercury fulminate are in process for the purpose of increasing the serviceable life of the detonators in high explosive ammunition. All ingredients used in foreign and domestic commercial primers have been tested and non-corrosive primers are specified in the purchase of .22 and .30 caliber ammunition. The use of alloys for weight saving as a substitute for cartridge brass and clips has been investigated and found satisfactory for clips. An improved design of caliber .22 rifle has been perfected and, because of the low cost of ammunition, will enable marksmanship training to be accomplished at a large monetary saving. With the same objective in view, a caliber .22 pistol on a .45 frame is being tested. Eighty caliber .30 Garand semi-automatic rifles were ordered and, when finished, will be put in the hands of troops for service testing. A design has been prepared for a combination machine gun mount, capable of attachment to any type of vehicle for anti-aircraft use whether the vehicle be moving or stationary. From French sources, four units of Stokes-Brandt 81 mm. mortar materiel were obtained and tested with favorable results. Metallurgical and textile experimentation has gone forward throughout the year, aimed at standardization and, in manufacturing operations, the centrifugal casting process for manufacturing cannon, the cold-working method of gun construction for all small and medium caliber cannons, and the welding process of gun carriage construction have all been found satisfactory and adopted as standard.

MEDICAL DEPARTMENT

During the year, 89,105 Army cases were admitted to sick report for treatment. In addition, civilians, including beneficiaries of the Veterans' Administration and of the Soldiers' Home; dependents of officers and enlisted men; retired military personnel; members of the National Guard, Reserve Officers Training Corps, Officers' Reserve Corps, and Citizens' Military Training Camp personnel; and other civilians at Army stations where civilian medical attention was not available, were treated professionally. In addition those who, because of illness, were excused from military duty, there were 989,708 out-patients during the year with a total of 1,791,037 treatments. Furthermore, there were 286,770 physical examinations made and 197,839 vaccinations of various kinds administered.

The trend of admission to sick report rates from all causes steadily declined throughout the last 40 years. From 1827 to 1831 each man was admitted to sick report every 4.5 months, whereas from 1927 to 1932 the figure was every 18 months. A monograph, *Bacterial Warfare* was completed and presents in popular form an analysis of this interesting subject. The tenth and concluding volume of the *Index Catalogue* of the Surgeon General's Office was completed, covering 3,590 author, 6,382 book, and 92,588 periodical titles, nearly 500 of which were printed before the end of the fifteenth century. The Army Medical Library now contains a total of 889,675 volumes and pamphlets.

CHEMICAL WARFARE SERVICE

Relation to Industry.—Officers of this service are on duty in every Department, Corps Area, Division, and in five service schools. This makes possible widespread cooperation with industry through the medium of technical advice and assistance. Among the most common subjects upon which information was requested and assistance rendered during the year were: protection of workmen against ammonia fumes,

IX. DEFENSE AND ARMAMENTS

against the presence of carbon monoxide, hydrocyanic acid and other toxic gases in minute concentrations; first aid to those overcome by gases prevalent in industrial establishments; protection to men engaged in cleaning large oil tanks, storage tanks, and tank cars; suppression and elimination of industrial smoke nuisances, with their accompanying gases; the perfection of gas masks for firemen and industrial workers. In this realm, the service does not compete with outside firms but furnishes assistance only when it can not be secured through other services.

Manufacture and Supply.—During the year, 98% of all purchases was centralized through the Purchasing Section of Edgewood Arsenal. Economies to the amount of \$71,946.58 were effected by reconditioning un-serviceable or obsolete material and, by replacing titanium tetrachloride with sulfur trioxide chlorosulfonic acid, a smoke material.

FINANCE DEPARTMENT

Functions.—This is the agency through which the War Department pays its personnel and bills, makes collections due, and audits property accounts in the hands of accountable officers. The Chief of Finance, as War Department Budget Officer, is charged with compiling and submitting to the Bureau of the Budget all estimates of funds for the several branches and services required for inclusion in the annual War Department appropriations made by Congress.

Amount Disbursed.—The total number of vouchers paid by the Finance Department during the Fiscal Year, 1932, was 995,113, representing an aggregate disbursement of \$349,148,655.76.

Commercial Invoices.—Every bill incurred by the War Department is met on a cash basis, thus effecting considerable savings. During the past fiscal year, 585,831 commercial invoices were handled. Most of these indicated a discount date, through which channel \$392,500.60 was earned. Since July 1, 1919, the Finance De-

partment has saved the Government \$3,891,393.44 by taking advantage of discounts offered.

Property Accounting.—All items of property purchased for the military establishment from monies appropriated by Congress for the support of the Army as an agency of national defense are audited by the Finance Department. This includes all real estate, buildings, docks, piers, army transports and machinery, as well as supplies purchased and issued to clothe, feed, and equip troops for field and garrison service. In the hands of Army agencies at present, excluding value of grounds and buildings, there is well over two billions of dollars worth of property. The accountability of this property is divided among some thirty-three hundred accounts which are audited at least once annually.

Savings Accounts.—Since 1873, soldiers' savings may be deposited in sums not less than \$5.00, to draw interest at 4 per centum per annum. Such deposits are returned to the soldier, with accumulated interest upon separation from the service. This provision was initiated to care for soldiers' savings when most of the Regular Army was on frontier duty where there were no banking facilities. Cases of enlisted men retiring with sums above \$5,000 to their credit are not rare. The largest single soldier's deposit of record is \$20,000. Deposits totaling \$964,244.57 were recorded in the past fiscal year, the number of active depositors as of June 30, 1932, being 6,365. The Government paid \$29,932.57 in interest on soldiers' deposits during the fiscal year, and from June 30, 1873, to June 30, 1932, the sum of \$71,492,890.79 has been deposited through this Army channel and it has earned \$3,731,707.60 in interest.

THE BUREAU OF INSULAR AFFAIRS

The Bureau of Insular Affairs constitutes the normal channel of communication in both directions between, on the one hand, the War Department and other agencies in the United States, and, on the other hand, the insular governments sub-

ACCOMPLISHMENTS OF ARMY PERSONNEL

ject to War Department jurisdiction. The Bureau's functions are, as regards the insular possessions in question, in many respects analogous to those of a Colonial Office for Civil Affairs. It acts in all matters pertaining to civil government in the island possessions of the United States. Its detailed activities are not prescribed by Congress, but are subject to the control of the Secretary of War to whom its services are available. Supervision under the War Department of Philippine affairs has now been continuously exercised for over thirty years and over Puerto Rican matters for over twenty years. Bond issues aggregating \$178,000,000 have been handled for these two groups during this period, and, for Philippine Island sinking fund accounts, bonds totaling more than \$35,000,000 have been purchased. The Bureau has supervised in the United States for the Philippine and Puerto Rican governments purchases of supplies averaging annually \$2,077,000 for the last five years. In 1932, sales of hydroelectric system bonds amounting to \$500,000 were handled for Puerto Rico. During the Seventy-second Congress a number of measures were introduced looking to a change in the economic and political relationships between the United States and the Philippines. Congressional legislation affecting Puerto Rico, for the same period, included: an act extending to Puerto Rico the benefits of the Reconstruction Finance Corporation Act; the Federal Home Loan Bank Act; and an act restoring to the island the official designation, "Puerto Rico."

ADJUTANT GENERAL'S DEPARTMENT

Functions.—As administrative officer of the War Department, The Adjutant General handles a voluminous correspondence of all kinds. During the fiscal year, 2,795,437 pieces of mail were received and distributed to the various divisions of the office for disposition. In July, 1931, a total of 219,525 communications was received, the maximum for any one

month; the highest day receipts, 22,302 pieces, occurred on Jan. 6, 1932.

Library Service.—The Army Library Service, under The Adjutant General, operated 160 main, 10 branch, 157 traveling, and 5 Army transport libraries. A total of 17,395 new books and 2,938 subscriptions to periodical was purchased; recorded circulation for the year was 1,707,052.

World War Records.—With \$250,000 appropriated for the purpose, approximately 3,870,000 documents have been examined and filed with individual records of men; many worthless duplicates were disposed of. At the beginning of the fiscal year, 130,416 applications for adjusted compensation were on hand; during the year 103,969 were received. Of this total, 232,425 were disposed of. It is estimated that 221,827 such applications may yet be received.

Military Decorations.—There were 16 awards of the distinguished service cross, 6 of the distinguished service medal, 33 of the soldiers' medal, 2 of the distinguished flying cross, and 13 silver star citations. The award of the "Purple Heart," a decoration originally established by George Washington at Newburgh, August 7, 1782, was revived and, by June 30, 1932, there had been awarded 6,942 of this decoration.

THE QUARTERMASTER CORPS

Real Estate.—Unfavorable conditions in the real estate market held sales down to a total of \$77,318.23. As a result of this year's and previous years' sales the sum of \$2,106,570.38 has been deposited in the United States Treasury. The salvage of 1,114 buildings was authorized and there remain 10,193 scattered temporary buildings whose disposition by sale or salvage is expected to be accomplished during 1933. From revocable leases the War Department received approximately \$431,397, while for the same item it paid out \$437,495.25. During the year 139 parcels of real estate were purchased at a cost of \$706,686.

IX. DEFENSE AND ARMAMENTS

Pilgrimage of Mothers and Widows.—Of the 34,339 veterans of the World War carried on the records of the War Department as lost at sea or whose remains are interred in Europe, investigation disclosed 18,256 mothers and widows eligible to visit the graves of their sons or husbands in European cemeteries. These pilgrimages, provided at the expense of the United States, may be taken at times designated by the Secretary of War between May 1, 1930 and Oct. 31, 1933. The schedule of each group provides for approximately two weeks stay in Europe. During 1932, five hundred sixty-six women made the trip. The average age of the pilgrims is 59 years, the oldest woman to make the journey being a mother 92 years of age, and the youngest, a widow of 27 years. There remain as eligible to make the journey before October 31, 1933, a total of 10,723 women, the majority of whom are of advanced age.

Cemeterial.—To mark the graves of deceased soldiers, sailors, and marines, 31,358 headstones were furnished during the year. The work of completion of the Tomb of the Unknown Soldier and the approaches thereto was accomplished before Memorial Day, 1932. The work of alteration of the road system at Arlington National Cemetery to provide circulation and access to the Tomb of the Unknown Soldier was 70% completed during the year. There were 3,894 interments in national cemeteries in the United States, bringing the total up to 423,483, while in Europe, in the eight permanent cemeteries, there were on June 10, 1932, a total of 30,874 interments. The Quartermaster General supervises 81 national cemeteries in the United States, one in Mexico, one in Alaska, one in Belgium, one in England, and 6 in France. Eighteen additional bodies, heretofore unknown, in registered graves on European battlefields, have been identified during the year and 15 bodies of those reported missing or unlocated were recovered. Three bodies were returned from France for shipment to relatives in the United States.

Horse Breeding.—During the breeding season, 16,528 mares were bred to 630 stallions and produced over 11,500 foals. There were purchased 120 stallions and 7 brood mares; 3 stallions were raised by the remount depots; 16 stallions and 24 brood mares were donated by public-spirited horsemen; and 80 stallions were lost.

Rail Transportation.—The three-fold plan of transportation permitting choice of passage in (1) standard sleepers, (2) tourist sleepers, or (3) coaches reduced the cost of War Department transportation restricted to tourist or coach service from 20% to 40%. A total of 12,594 troops, in parties of 15 or more were transported by rail during the year, of which 6,451 were moved by 38 special trains of 389 cars.

Army Transport Service.—To provide more adequate passenger accommodations, the *S. S. Republic* was taken over from the Shipping Board in exchange for the *Cambrai* and the *Somme*. The annual savings accomplished by this exchange approximates \$150,000. Owing to a change in policy under which the procurement of American products only are authorized, the transportation of coal from Miike, Japan, to Honolulu was discontinued. The freighter *Meigs* was used to carry coal from Newport News, Va., to Honolulu, effecting a savings of \$17,100. The following tabular summary shows the value of this service to the Government during the year.

Passengers (entitled to transportation at government expense):

Number of passengers transported....	47,282
Cubic tons of cargo transported.....	193,726
Pounds of mail transported.....	396,089
Number of remains transported.....	131
Number of animals transported.....	724
Cost of operation of transports....	\$3,019,049.85
5% overhead, based on above cost	150,952.49
Cost of shore establishments.....	337,305.72
Cost of "Merritt" out of commission.....	2,195.27

Comparison of army transport cost with commercial value of work performed:

Commercial value.....	\$3,982,953.21
Army transport cost.....	1,919,698.32
Savings to Government.....	\$2,063,254.89

ACCOMPLISHMENTS OF ARMY PERSONNEL

Cargo, mail, remains, and animals:

Commercial value.....	\$3,294,533.59
Army transport cost.....	1,589,805.01
Savings to Government.....	\$1,704,728.58
Total cargo and passenger savings.....	\$3,767,983.47

THE INSPECTOR GENERAL'S DEPARTMENT

The Inspector General's Department consists of The Inspector General and forty officers, all detailed. During the year, nine officers were in the Inspector General's office, two served as additional members of the War Department General Staff, and the remainder were on duty at Headquarters of Corps Areas, Departments, and Divisions. Fifty-nine reports of investigations were received for review and recommendation to the Secretary of War for action. As a result, considerable sums of money were ordered collected from individuals, to be applied to the adjustment of losses of public funds and property. Officers of the department made 529 inspections of the accounts of Army disbursing officers and accounts of United States property and disbursing officers of the National Guard. Inspectors report that, during the year, there were but 2,800 cases of desertion as compared with the previous year's 5,076.

JUDGE ADVOCATE GENERAL'S DEPARTMENT

Function.—The function of The Judge Advocate General's Department is to operate the system of military justice and to act as legal adviser to the War Department and the entire military establishment both in Washington and in the field.

Courts-Martial.—During the past year 2,954 persons were tried by general court-martial, of which number, 2,783 were convicted and 171 acquitted. Specifications tried by general courts-martial represented 117 different offenses, but a large majority alleged desertion or absence without leave.

Contracts and Reservations.—In the handling of questions relative to the making or operation of contracts

in which the War Department or any of its agencies is interested, during the past year, 817 formal written opinions were prepared.

Claims and Bonds Section.—Rendered more than 800 formal opinions on questions pertaining to contractors bonds and claims in favor of or against the Government.

Miscellaneous.—The Military Affairs Section rendered 236 formal written opinions in cases affecting Army organization, administration and Army personnel and also handled a large number of questions pertaining to courts-martial and proceedings. The principal duties of the Central Patent Section have been in connection with the settlement of claims filed under the War Claims Act of 1928. The following figures reflect a part of the work done in the preparation of patent matters, showing patent cases against the United States in which the War Department is involved:

Cases pending June 30, 1931.....	41	\$663,932,716.16
New cases filed during year	4	9,050,000.00
Total.....	45	\$672,982,716.16
Judgments in favor of United States (claims dismissed).....	8	\$428,007,359.53
Judgments against the United States.....	1	26,433.35
Pending June 30, 1932.....	36	244,948,923.28
Total.....	45	\$672,982,716.16

The Insular Affairs Section represents the Philippine and Puerto Rican insular governments in cases in the United States Courts brought up for review from the insular courts. Six of such cases were received and disposed of, leaving no cases pending in the Supreme Court on June 30, 1932. In the Circuit Court of Appeals, First Circuit, seven cases were disposed of, leaving two pending; in the Third Circuit the only pending case was disposed of.

In addition to various other activities, this section rendered some 68 opinions to the Secretary of War, the Bureau of Insular Affairs and the Puerto Rican Hurricane Commission, concerning Canal Zone, Philippine and Puerto Rican matters.

IX. DEFENSE AND ARMAMENTS

CORPS OF CHAPLAINS

During the year, Regular Army Chaplains conducted 16,395 services, attended by approximately 1,459,604 people; 596 marriage ceremonies and 1,196 baptisms were performed; 1,673 funeral services were conducted. Civilian ministers conducted 1,607 religious services for military personnel, while Reserve Corps Chaplains officiated at 103 services. Four chaplains successfully completed post-graduate courses at the University of Chicago, one earning the Master of Arts degree. Three chaplains are detailed to transport duty and twenty-nine are now serving outside our continental limits. One chapel building was lost by fire during the year, while remodeling and improvement was accomplished at Luke Field and Schofield Barracks, Hawaii, and at Fort William McKinley in the Philippines.

CIVILIAN PERSONNEL DIVISION

Under Administrative Assistant, John W. Martyn, this office exercises administrative control in matters pertaining to civilian employees in

the War Department and with the Army. This task involved, during the past year, decisions of all matters of civil service law and rules, classification allocations and schedules, retirement determinations, and compensation changes for a force of employees, departmental and field, approximating forty-five thousand in number.

PANAMA CANAL

The Panama Canal, while not a part of the War Department, is under the personal supervision of the Secretary of War. Its present Governor, Lieutenant Colonel Julian L. Schley, is an Engineer Corps officer. The total number of transits through the canal during the fiscal year 1932 was 4,506 with a net tonnage of 23,625,419 tons. Tolls collected amounted to \$20,707,377.05. The construction of the Madden Dam across the upper Chagres River is in progress. The completion of this dam will supplement the water supply in Gatun Lake for lockages, control floods in the Chagres River, and provide additional hydroelectric power.

ARMY AERONAUTICS

BY ROBERT S. THOMAS

CHIEF CLERK, HISTORICAL SECTION, ARMY WAR COLLEGE

FIVE-YEAR PROGRAM

Objectives.—The Five-year Program, which was scheduled for completion this year, has two objectives—(1) to produce a definite number of tactical squadrons equipped and trained for immediate service on the outbreak of war, and (2) to provide the were curtailed and efforts were made to constitute all tactical units called for by the Five-year Program, even if it was not possible to give them immediately their full complement of pilots, enlisted men, and airplanes.

Planes.—On June 30, 1932, there was a total of 1,814 airplanes on hand for the Regular Army, National Guard, and Organized Reserves. Of these, but 1,604 were serviceable for

framework for the expansion of the air forces in a major emergency. Because of reduced appropriations, this program could not be completed on schedule but within the Air Corps every effort was made through the year to build toward that objective. Relatively less essential activities full use. There were under contract, but not yet delivered, 67 airplanes. Thus there was a shortage of 129 planes, below the planned objective of 1,800 planes.

CONSTRUCTION

Randolph Field, Tex., was completed and occupied and Barksdale Field, Shreveport, La., is almost ready for occupancy. Additional housing and

technical construction was completed at Langley Field, Va., and at Maxwell Field, Montgomery, Ala. Important projects were also started at Hamilton Field and at the Air Depot at Alameda, Calif.

MATERIEL

During the year, emphasis was placed on the procurement of tactical types of planes. Experimental work has inclined toward metal monoplane construction and emphasis has been placed on aerodynamic and structural refinements, aiming at increased safety factors. Improved type propellers are under development, employing magnesium and aluminum for weight reduction. Improved aircraft armament is under design and a new flexible gun mount and electrically operated bomb racks have been perfected, capable of automatic actuation by one of the new bomb sights, a time saving as compared with the manual operation of the old type. In aerial navigation, radio phenomena have been applied to the solution of fog flying and blind landing, one blind flight having been made successfully from takeoff to landing.

PHOTOGRAPHY

Approximately 48,000 square miles were photographed from the air for non-military purposes for the War Department and other Federal agencies. This work included aerial mosaics such as are required for topographic mapping, flood control, highway planning, and settlement of boundary disputes.

RELIEF WORK

The Eleventh Bombardment Squadron, March Field, Calif., participated in the relief of thousands of Indian wards of the Government, isolated by a blizzard on the mesas of Arizona and in danger of starvation. Within 24 hours after receipt of the call for assistance, the Squadron was in action. The Indians were literally bombed with fifteen tons of foodstuffs, re-

moving all danger of starvation. The entire operation was conducted in extremely cold weather over desolate and little known country.

STATISTICAL

Air Corps Strength.—At the close of the fiscal year, commissioned strength was 1,254, an increase of but 18 officers during the year and leaving a shortage of 396 officers from the objective of 1,650. An average of 271 Reserve Officers were on extended active duty with the Regular Army during the year and there was maintained an average of about 302 flying cadets out of the 335 authorized by the War Department. The enlisted strength of the Corps was approximately 13,400, representing a difference of 1,600 from the objective of 15,000.

Flying.—A total of 371,254 flying hours were flown by pilots of the Regular Army and Organized Reserves in the various phases of training and operations. A total of 20,590 hours were flown by 1,505 Reserve pilots on two weeks' active and inactive duty, employing a total of 187 airplanes. The 19 National Guard observation squadrons, equipped with all planes allocated under the Five-year Program, maintained their usual high efficiency during the year.

Maneuvers.—The Air Corps participated in the Joint Army and Navy Maneuvers in the Hawaiian Department and off the Pacific Coast, and combined training with ground troops occurred on many occasions. Valuable experience was gained from anti-aircraft exercises held at Fort Humphreys, Va. On the grounds of economy, the Annual Air Corps Exercises were not held.

Accidents.—The number of fatal accidents in the fiscal year increased from 21 to 33 and resultant fatalities from 26 to 50. The number of injured increased from 75 to 89. This is at the rate per fatal accident of .088 per 1,000 flying hours as compared with .053 for the previous fiscal year.

IX. DEFENSE AND ARMAMENTS

MILITARY EDUCATION

BY ROBERT S. THOMAS

CHIEF CLERK, HISTORICAL SECTION, ARMY WAR COLLEGE

INFANTRY

Functions.—The Infantry and the Tank Schools train Infantry officers and enlisted men of the Regular Army, National Guard, and Organized Reserves in Infantry tactics and technique, and impart a working familiarity of these fundamentals in associated service arms.

The Infantry School, Fort Benning, Ga., has completed twelve years of successful operation. During this period more than 74% of all Infantry officers have completed one or more courses at this school. The following courses were conducted in 1931-32: Advanced Course, 99 graduates; Company Officers' Course, 130 graduates; National Guard and Reserve Officers' Course, 99 graduates (81 National Guard, 18 Reserve Corps); National Guard and Reserve Field Officers' Course, 22 graduates; Refresher Course, 22 graduates; Horsehoers' Course (Enlisted Men), 16 graduates; National Guard Enlisted Specialists' Course, 52 graduates.

The Tank School, formerly at Fort George G. Meade, Md., was transferred to Fort Benning in June, and is now listed as a separate course at the Infantry School. The courses and graduates for the last session held at Fort George G. Meade, 1931-32, were: Special Refresher Course, 16 graduates; Regular Army Officers' Course, 54 graduates; National Guard and Reserve Officers' Course, 13 graduates (3 Natl. Gd.—10 Res.). Enlisted Men's Courses: Reconnaissance, 4 graduates; Motor Mechanics, 30 graduates; Clerical, 5 graduates; Stenographers, 10 graduates.

CAVALRY

The Cavalry School, Fort Riley, Kan., trains officers and enlisted men in cavalry tactics and technique, and qualifies them to instruct in cavalry subjects. Courses conducted during 1931-32 and the number of graduates were: For Regular Army

Officers; Troop Officers' Course, 22 graduates; Advanced Class, 18 graduates; Advanced Equitation Course, 17 graduates; Refresher Course, 3 graduates. For National Guard and Organized Reserve Officers; Troop Officers' Course, 23 graduates; Advanced Course, 2 graduates. For enlisted men; Noncommissioned Officers' Course, Regular Army, 23 graduates; National Guard, 9 graduates; Horsehoers' Course, 29 graduates; Saddlers' Course, 17 graduates. During the school year, one officer attended l'Ecole de Superieure de Guerre in France and one attended the French Cavalry School at Saumur; one attended the Italian Cavalry School; two, the German; two, the Polish, and one, the Swedish Cavalry School. Fifty-five cavalry officers attended courses at other service schools, one was enrolled in the Harvard University School of Business Administration and one is taking the Rhodes Scholarship Course at Oxford.

ARTILLERY

The Field Artillery School, Fort Sill, Okla., develops Field Artillery technique and tactics, and disseminates that knowledge to all Army components. During 1931-32, the following were the courses and graduates: For Officers; Advanced Course, 50 graduates; Battery Officers' Course, 49 graduates; Advanced Horsemanship Course, 5 graduates; Advanced Motor Course, 6 graduates; National Guard and Reserve Corps Battery Officers' Course, 36 graduates (Fall) and 23 graduates (Spring); National Guard and Reserve Corps Field Officers' Course, 7 graduates. For Enlisted Men; Horsehoers' Course, 8 graduates (Fall) and 3 graduates (Spring); Motor Mechanics' Course, 4 graduates; Saddlers' Course, 9 graduates (Fall) and 1 graduate (Spring); Battery Mechanics' Course, 11 grad-

MILITARY EDUCATION

uates; Communications Course, Regular Army and National Guard, 69 graduates.

The Coast Artillery School, Fort Monroe, Va., conducts courses designed to keep abreast with the latest developments in tactics and technique of fixed, railway, tractor-drawn, and anti-aircraft artillery. A total of 93 officers and 72 enlisted men graduated from courses held during 1931-32.

ENGINEERING AND SIGNALING

The Engineer School, Fort Humphreys, Va., is established for the instruction and training of engineer officers in the technique and tactics of the engineer arm. An extensive library is maintained, the main portion of which is located at the Army War College in Washington with branches at Fort Humphreys and in the Office, Chief of Engineers. The following courses were conducted during 1931-32: The Company Officers' Course, 21 graduates; National Guard and Reserve Officers' Course, 24 graduates (11 Natl. Gd.—13 Res.); Enlisted Specialists' Course, 47 graduates. Officers of the Corps attended civilian institutions as follows: Cornell University, 3; Massachusetts Institute of Technology, 2; Princeton University, 1; Iowa State University, 3; University of California, 10. Five officers were in attendance at Oxford University (Rhodes Scholarships); two made studies of European Hydraulic Research Methods under John R. Freeman Traveling Scholarship Awards by the American Society of Civil Engineers; one officer served his third year detailed to Japan as a language student.

The Signal School, Fort Monmouth, N. J., graduated 28 officers from its company and communication officers' courses of nine months' duration. Of these, 8 were Signal Corps, 11 Infantry, 3 Cavalry, 2 Field Artillery, and 3 Marine Corps officers. Ten National Guard officers and 4 Signal Reserve Corps officers were graduated from a special 3-months' course. The officers' courses cover the theory and operation of modern electrical communication equipment and its

military coordination and tactical employment. The enlisted specialist courses, conducted along vocational lines, graduated 75 men as radio electricians, 40 as telephone electricians, and 14 as photographers. The normal term is nine months in length. In addition, 132 enlisted men were graduated from half-term courses designed to train military meteorological observers, radio operators and telephone maintenance specialists for duty with permanent and field communication stations and systems.

FINANCE AND ACCOUNTING

The Finance School, U. S. Army, Washington, D. C., is divided into two departments, (a) Department of Finance and Accounting and (b) Department of Property Accounting and Property Auditing. The School conducts courses for both officers and enlisted men, and its personnel at present consists of one officer, two warrant officers, and ten enlisted men. Thirty-seven students were graduated last year, making a total of 751 officers, warrant officers and enlisted men who have attended the School and graduated since its establishment in 1920. In addition to the resident courses, the School also conducts special courses, by correspondence, covering both finance and accounting, and property auditing.

MEDICAL DEPARTMENT

The Army Medical Center, Washington, D. C., comprises the Army Medical School, the Army Dental School, the Army Veterinary School, and the Walter Reed General Hospital. Basic and advanced courses in technical subjects are conducted at these schools for officers and enlisted specialists of the Medical Department. The Army School of Nursing was discontinued during the past year. The Medical Field Service School, Carlisle Barracks, Pa., instructs in methods and procedures utilized in the employment of Medical Department field units. The School of Aviation Medicine, Randolph Field, Tex., trains officers to qualify as flight surgeons. The fol-

IX. DEFENSE AND ARMAMENTS

lowing were graduated during 1931-32: Army Medical School; basic course, 41 officers (including 1 Cuban officer); advanced course, 5 officers; x-ray technicians' course, 32 enlisted men. Army Dental School; basic course, 9 officers; advanced course, 4 officers; dental mechanics' course, 15 enlisted men. Army Veterinary School; basic course, 7 officers; veterinary technicians' course, 5 enlisted men. Medical Field Service School; basic course, 49 officers (including 2 Naval and 1 Cuban officer); advanced course, 7 officers; Organized Reserve and National Guard field officers' course, 13 officers; Noncommissioned officers' course, Regular Army and National Guard, 49 enlisted men (including 4 noncommissioned officers of the Navy). School of Aviation Medicine; two courses for Regular Army, 9 officers; two courses for Organized Reserve, 14 officers; three courses for National Guard, 3 officers. During the year, 3,848 Reserve officers completed the Army extension courses and 162 completed the extension course of the School of Aviation Medicine.

ORDNANCE DEPARTMENT

The Ordnance School, formerly located at Watertown Arsenal, but now at Aberdeen Proving Ground, Md., has as its mission the technical training of Regular Army Ordnance officers. Instruction covers two full years, divided into Course I and II. Students of Course I attend classes at the Massachusetts Institute of Technology for part of the year and at Watertown Arsenal during the latter part. Course II students are instructed at Picatinny Arsenal, Dover, New Jersey, and at Aberdeen Proving Ground. In 1932, eleven students (including 1 Cuban officer) completed Course I; seven were graduated from and five completed part of Course II.

The Ordnance Field Service School, Raritan Arsenal, N. J., trains personnel in making repairs to Ordnance materiel and in the duties of supply of Ordnance equipment, parts, and ammunition to various Army com-

ponents. In 1931-32, nine Ordnance officers, 2 Navy officers, and 142 enlisted men, Regular Army, attended this school. The Noncommissioned Officers' Course enrolled 47 and the Specialists' Courses, 97.

Civilian Educational Institutions.—Two Ordnance Department officers graduated from the Harvard School of Business Administration, and two, from a special 2-year course in Ordnance Engineering at Stanford University.

CHEMICAL WELFARE

The Chemical Warfare School, Edgewood Arsenal, Maryland, offers courses annually to officers of the Army and Navy. Since its establishment in 1921, there have been graduated 1,335 officers and 318 enlisted men; of this number, 650 officers and 171 enlisted were from the Navy. During 1931-32, the following courses were given and numbers graduated: Unit Gas Officers' Course, 32 graduates; Line and Staff Officers' Course, 29 graduates; Field Officers' Course, 39 graduates; Navy Construction Course, 5 graduates; Navy Ordnance Post Graduate Course, 8 graduates; Navy Line Officers' Course, 26 graduates.

QUARTERMASTER CORPS

Schools for Bakers and Cooks, twelve in number, are scattered throughout the Corps Areas and Departments. Approximately 300 officers and 1,200 enlisted men from all arms and services successfully completed courses in these schools.

Quartermaster Corps School, Philadelphia, graduated 33 officers from the regular course (one a Chinese Nationalist); 8 National Guard and 2 Reserve Officers graduated from a special course for those arms; the Warrant Officers' and Non-Commissioned Officers' Course graduated 48.

Quartermaster Corps Subsistence School, Chicago, graduated 11 officers (7 Quartermaster, 3 Navy, and 1 Marine Corps).

Quartermaster Corps Motor Transport School, Camp Holabird, Baltimore. In addition to 11 Quartermaster officers, there were graduated 5

MILITARY EDUCATION

line officers of the Army and 2 U. S. Marine Corps officers. Special classes were attended by 89 Reserve Officers and 72 enlisted men completed enlisted men's courses.

AVIATION

The Air Corps Tactical School, Maxwell Field, Alabama, graduated 39 officers.

Primary Flying School, March Field, California, graduated 50 officers.

Primary Flying School, Brooks field, Texas, graduated 51 officers.

The Air Corps Engineering School, Wright Field, Ohio, graduated 16 officers.

Primary Training was abandoned at March Field and Brooks Field. An average of 335 flying cadets was authorized by the War Department and an average of 302 was actually maintained throughout the year. The first class of flying cadets trained at Randolph Field, Texas, graduated 247 who were commissioned in the Air Corps Reserve with the rating of airplane pilot.

The Air Corps Technical School, Chanute Field, Illinois, graduated 57 officers. Courses were conducted in armament, communications, maintenance engineering, and photography.

The Air Corps Advanced Flying School, Kelley Field, Texas, graduated 51 Regular Army officers, 246 Flying Cadets, 1 Noncommissioned Officer, and 1 foreign student.

GENERAL SERVICE SCHOOLS

The Command and General Staff School, Fort Leavenworth, Kansas, graduating 115 student officers in 1932, conducts a 2-year course, thoroughly grounding selected officers in the principles of the command, staff, tactics, and logistics of large tactical units.

The Army War College, Washington, D. C., extends instruction received at Leavenworth to the subjects of mobilization, supply, and military operations on a large scale. There were graduated in 1932, a total of 84 officers; 76 from the Army, 5

from the Navy, and 3 from the Marine Corps.

The Army Industrial College, Washington, D. C., trains Army officers for duties pertaining to the supervision and procurement of military supplies and of assurance of adequate provision for industrial mobilization in a national emergency. This work is confined to instruction in matters of general policy and the broader aspects of procurement activity. In the 1931-32 course, 51 officers were graduated; this number included 41 Army, 7 Navy, and 3 Marine Corps. Three instructors were also graduated, one each from the Air Corps, Ordnance Department, and Engineer Corps.

RESERVE OFFICERS' TRAINING CORPS

Enrolment.—At the close of the school year 1932 there were 114,545 students enrolled in the Reserve Officers' Training Corps. These were divided among 325 units scattered throughout the States, the District of Columbia, Porto Rico, and Hawaii. There were 220 senior units with an enrolment of 73,989, and 105 junior units with an enrolment of 40,556. There were in attendance at the summer training camps for the basic course 825, and for the advanced course 6,640. At the close of the school year 1931-32, there were 55 preparatory schools, including high schools, which had received Government aid. Enrolment in the second-year advanced course totaled 6,341 and 5,490 commissions as lieutenants in the Officers' Reserve Corps were offered to graduates. In addition, 933 certificates were granted to those eligible for appointment but who had not yet reached the age of 21 or who did not desire appointment at the time.

Citizens' Military Training Camps.

—Of the 41,652 applicants ordered to camp, 39,921 reported, 38,546 were enrolled, and 37,222 completed the training. Of this latter number, 2,098 were graduated from the blue course and of these, 325 were appointed second lieutenants in the Reserve Corps.

IX. DEFENSE AND ARMAMENTS

ADMINISTRATION OF VETERANS' AFFAIRS

BY FRANK T. HINES

BRIGADIER GENERAL U. S. A.; ADMINISTRATOR OF VETERANS' AFFAIRS

ACTIVITIES*

Scope.—The extent of the activities of the Veterans' Administration is indicated by the following table showing the veterans or dependants of deceased veterans who were receiving benefits administered by the Veterans' Administration as of June 30, 1932, subdivided by type of service:

Type of Service	Number
War of 1812.....	7
Mexican War.....	478
Indian Wars.....	9,659
Civil War.....	171,845
War with Spain.....	246,214
Regular Establishments.....	24,761
World War.....	1,145,116
Total beneficiaries.....	1,598,080
Total veterans involved.....	1,278,046

Beneficiaries. — During the two years the Veterans' Administration has been in existence, the number of beneficiaries receiving direct monetary benefits in the form of pension or compensation has increased 519,036, or approximately 50%, and within the past year 248,268 or approximately 20%. As of June 30, 1932, beneficiaries of the World War represented 72% of the total number on the rolls. As of June 30, 1930, the World War veterans represent 56% of the total number on the rolls. During the same two-year period, the hospital load of the Veterans' Administration increased 24% and the domiciliary load 44%, while the number of out-patient treatments and physical examinations ordered during the year ended June 30, 1932, increased 14% and 117% respectively over the number recorded for the fiscal year 1930.

DISABILITY ALLOWANCE

Disability allowance is that form of benefit authorized as of June 30, 1930, for any honorably discharged veteran who entered the service prior to November 11, 1918, and

served 90 days or more during the World War and who is suffering from a 25% or more permanent disability, not the result of his own wilful misconduct, which was not acquired in service during the World War, for which compensation is not payable. The authorized monthly rates of payment for the different degrees of disability are as follows: 25% permanent disability, \$12; 50% permanent disability, \$18; 75% permanent disability, \$24, and total permanent disability, \$40. Through June 30, 1932, a total of 879,965 applications had been filed, of which number 818,746 had been adjudicated. Of the total number adjudicated, 438,618 and 380,128 had been allowed and disallowed, respectively. An analysis of the 407,584 active awards as of June 30, 1932, discloses that 258,663 had a total permanent disability of 25%; 96,484 a disability of 50%; 23,525 a disability of 75%; and 28,912 a total permanent disability.

DISABILITY COMPENSATION

As of June 30, 1932, compensation was being paid to 328,658 veterans for disabilities directly or presumptively resulting from service in the World War, as compared with 299,288 at the close of the fiscal year 1931, an increase of 29,370. An analysis of the major disabilities for which veterans are receiving compensation discloses that 21% of the total are suffering from neuropsychiatric diseases, 19% from tuberculosis, and 60% from general medical conditions. This distribution has remained fairly constant for the past five years. Approximately 53% of the above disabilities are rated permanent partial, 32% temporarily partial, 11% permanent total, and 4% temporary

*For the organization of the Veterans' Administration see THE AMERICAN YEAR BOOK for 1931.

ADMINISTRATION OF VETERANS' AFFAIRS

total. When the disability for which compensation is payable is rated on a temporary basis, an additional allowance is authorized for dependents. As of June 30, 1932, there were 91,199 cases of this kind in which an additional sum was being paid for 84,357 wives, 162,116 children, 5,959 mothers and 1,961 fathers. In addition to compensation, 11,828 veterans were receiving insurance payments as of the above date for permanent and total disabilities. As of the above date, there were 2,904 women veterans receiving compensation payments, classified as follows: Army Nurse Corps, 2,380; other army women, 12; Navy Nurse Corps, 120; Yeomen (f) 387; and Marinettes, 5.

DEATH COMPENSATION

As of June 30, 1932, compensation was being paid to the dependents of 97,448 veterans who died as a result of disabilities or injuries incurred in the military service during the World War. This form of compensation was being paid as of the above date to 23,961 widows, 36,565 children, and 87,490 parents, at an average monthly payment of \$27.98. An analysis of the immediate cause of death of the 97,448 veterans discloses that 28,885 were the result of battle injuries and 68,600 the result of diseases. Of the deaths due to diseases, 46,141 occurred in the United States, 19,472 overseas, 2,406 at sea,

and in 581 cases the place of death was unknown. The dependents of 6,914 deceased veterans reside outside the continental limits of the United States. The largest single group resides in Italy, where payments are being made to the dependents of 1,960 deceased veterans. There are 703 in the British Isles, 693 in Poland, 652 in the Philippine Islands, and 545 in Puerto Rico.

RETIRED EMERGENCY OFFICERS OF WORLD WAR

Applications for retirement under the Act of May 24, 1928, have been filed by 14,047 former officers as of June 30, 1932. Retirement pay has been awarded to 6,964 officers. Payments have been discontinued in 549 cases because of death subsequent to retirement. The average age of officers retired under the above act is 47 years as compared with an average age of 40 years for all veterans who served in the armed forces of the United States during the World War.

ADJUSTED COMPENSATION (THE BONUS)

Claims.—As of June 30, 1932, 3,946,891 claims for the several forms of adjusted compensation had been approved. The value of these claims approximated \$3,695,556,710.71. The following itemization shows a distribution of these benefits by type and approximate value, as of the above date:

Type of Benefit	Number	Value
Applications received.....	3,989,787	
Applications approved.....	3,946,891	\$3,695,556,710.71
Cash payments.....	157,436	5,285,067.71
Veterans \$50 or less.....	149,170	5,061,163.71
Dependents less than \$50.....	8,266	223,904.00
Dependents \$50 or more.....	111,480	39,014,871.00
Certificates.....	3,677,975	3,648,287,632.00
\$60 lump sum payments.....	49,489	2,969,340.00

Of the above certificates 126,555, having an approximate value of \$127,313,951, had been matured by death as of June 30, 1932.

Credits.—The act provided that for each day's service in excess of sixty days a credit of \$1 and \$1.25 per day would be allowed for service in the United States and overseas respectively, provided such credits do not exceed \$500 and \$625 respec-

tively. To those veterans who had a basic credit of \$50 or less the act provided that the payments be made in cash. In the event the veteran had been killed or had died prior to the approval of the act, the adjusted service credit was paid in ten equal quarterly installments to his dependents, if the amount was over \$50, otherwise in one sum. In the case of a living veteran, to the basic

IX. DEFENSE AND ARMAMENTS

credit of \$50 or more there was added 25%, and this sum (the basic service credit plus 25%) was used as a single net premium to purchase for the veteran at his then attained age a paid-up endowment certificate maturing upon his death or at the end of the 20 year period.

Loan Provisions.—The original act provided that after a period of two years the certificate could be used as collateral to secure a loan, the amount of the loan not to exceed 90% of the reserve value of the certificate. The loan value was subsequently increased to 50% of the face value of the certificate and as of July 21, 1932, the law was further amended to permit veterans to borrow immediately upon the issuance of the certificate. As of June 30, 1932, 2,584,582 certificates were pledged for loans and held by the Veterans' Administration in the amount of \$1,369,042,679.39. In addition it is estimated that loans made by banks to the value of \$60,000,000 are outstanding.

TERM INSURANCE

On June 30, 1932, monthly installments of term insurance were being paid to 12,713 permanently and totally disabled veterans and to the beneficiaries of 132,818 deceased veterans. The value of the policies on which payments are being made on account of permanent and total disability and because of death is \$104,131,302 and \$1,153,668,555 respectively. The law provides that upon the death of the beneficiary named in term insurance policies, the commuted value of unpaid installments will be paid to the estate of the veteran, and as a result lump sum payments have been made in 26,030 cases in the amount of \$123,764,118. An analysis of the disabilities for which term insurance is being paid reveals that neuropsychiatric diseases are the disabling cause in 5,733 cases, or 45%; tuberculosis in 3,676 cases, or 29%; diseases of the circulatory system in 634 cases, or 5%; and the remaining 21% is represented by miscellaneous diseases or causes. A study of deaths among

veterans as a result of which beneficiaries are receiving payments of term insurance shows that 54,161 or 41% were due to battle casualties, accidents and other trauma; 45,450 or 34% were caused by diseases of the respiratory system; 16,077 or 12% were caused by tuberculosis; and the remaining 13% were due to miscellaneous diseases or causes.

U. S. GOVERNMENT LIFE INSURANCE

As of June 30, 1932, there were 641,218 Government life insurance policies in force, aggregating \$2,977,083,467 of insurance, compared with 645,964 policies in force, aggregating \$3,023,938,351 of insurance as of June 30, 1931. This decrease is directly due to the industrial and financial conditions affected by the prolonged period of economic depression. During the period of twelve months prior to June 30, 1932, 19,412 new policies were issued as compared to 17,582 policies issued during the twelve month period ending June 30, 1931.

The United States Government life insurance policies provide that after having been in force one year they may be surrendered for cash or paid-up insurance. During the period of twelve months ended June 30, 1932, there were 8,597 policies, representing \$29,966,082.11 insurance surrendered for cash. The total number of policies surrendered for cash as of June 30, 1932, was 63,778, representing \$202,609,298.14 insurance. As of June 30, 1932, policies having a face amount of \$7,259,680 have been surrendered for paid-up insurance and 1,328 policies having a total face amount of \$1,342,975.04 paid-up insurance have been issued.

PENSIONS

Pensioners.—Although 117 years have elapsed since the close of the War of 1812, there are yet 7 persons in receipt of pensions on account of service rendered by soldiers in this war: 5 widows, 1 remarried widow, and 1 daughter. The following table shows the number of pensioners on the rolls as of June 30, 1932, by wars:

ADMINISTRATION OF VETERANS' AFFAIRS

Wars	Soldiers	*Dependents	Nurses	Total
1812.....	.....	7	...	7
Mexican.....	.....	478	...	478
Indian.....	5,102	4,453	...	9,555
Civil.....	31,072	139,924	18	171,014
Spanish American.....	196,541	36,802	532	233,875
Regular Establishments.....	18,391	4,571	...	22,962
World War.....	38	12	...	50
Total.....	251,144	186,247	550	437,941

* Dependents of 186,247 deceased veterans.

Disbursements for all pensions during the period June 30, 1931, to June 30, 1932, totaled \$239,509,428.65, which was \$1,910,292.78 less than the amount disbursed during the preceding twelve months. Of the amount \$239,509,428.65, \$144,508,143.98 was paid to veterans; \$87,694,170.80 to widows, children and dependents, and \$307,113.87 to army nurses. The following table shows the above amount distributed by wars:

Wars	Amount
1812.....\$	4,000.00
Mexican.....	326,124.32
Indian.....	4,575,590.05
Civil.....	107,865,760.88
Spanish American.....	113,758,457.43
Regular Establishments.....	5,966,519.43
World War.....	12,976.54
Total.....	\$232,509,428.65

HOSPITALIZATION

Patients.—As of June 30, 1932, there were 43,841 patients remaining under treatment and observation in all hospitals whose admission had been authorized by the Veterans' Administration. Since 1919, when hospital care and treatment were first authorized, there have been 1,140,998 admissions to hospitals, of which 148,662 were made during the present year. The latter figure represents an increase of 36% over the admissions during the fiscal year 1931. Patients admitted to the hospital for the first time during the year numbered 85,078 or 57% of the total admissions. The following table shows the admissions of Veterans' Administration patients to all hospitals, by branch of service and type of patient, during the fiscal year 1932:

*Branch of Service	Total	Pulmonary Tuberculosis	Psychotic	Other Neuropsychiatric	General Medical and Surgical
Veterans' Administration.....	87,785	10,078	6,058	9,171	62,478
U. S. Marine.....	7,934	234	64	534	7,102
U. S. Army.....	12,460	981	288	898	10,293
U. S. Navy.....	34,261	802	474	3,250	29,725
U. S. Interior.....	115	2	52	2	59
State Institutions.....	258	2	204	34	18
Civil Institutions.....	5,849	769	210	317	4,553
† Total.....	148,662	12,868	7,350	14,206	114,238

* Branch of service refers to the type of hospital.

† Admissions of 506 allied veterans and 326 miscellaneous beneficiaries not included.

Hospitals.—The following table shows the hospitals under the supervision of the Veterans' Administration by location and standard bed capacity, as of June 30, 1932:

Alexandria, La.....	439	Dwight, Ill.....	255
American Lake, Wash.....	512	Hines, Ill.....	1,750
Aspinwall, Pa.....	269	Excelsior Springs, Mo.....	252
Atlanta, Ga.....	200	Fargo, N. D.....	57
Augusta, Ga.....	755	Ft. Bayard, N. M.....	450
Bedford, Mass.....	644	Ft. Harrison, Mont.....	306
Boise, Idaho.....	206	Ft. Lyon, Colo.....	589
Bronx, N. Y.....	950	Gulfport, Miss.....	594
Camp Custer, Mich.....	774	Indianapolis, Ind.....	152
Castle Point, N. Y.....	455	Jefferson Barracks, Mo.....	372
Chillicothe, Ohio.....	614	Kansas City, Mo.....	200
Coatesville, Pa.....	483	Knoxville, Iowa.....	851
		Lake City, Fla.....	307
		Legion, Texas.....	433
		Lexington, Ky.....	250
		Lincoln, Neb.....	197
		Livermore, Calif.....	318
		Lyons, N. J.....	895
		Marion, Ind.....	1,400

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Memphis, Tenn.	470
Minneapolis, Minn.	554
Muskogee, Okla.	400
Newington, Conn.	266
Northampton, Mass.	555
North Chicago, Ill.	1,135
North Little Rock, Ark.	750
Northport, L. I., N. Y.	1,392
Oteen, N. C.	612
Outwood, Ky.	375
Palo Alto, Calif.	1,010
Perry Point, Md.	1,015
Philadelphia, Pa.	416
Portland, Ore.	337
Rutland Heights, Mass.	420
St. Cloud, Minn.	494
San Fernando, Calif.	230
Sheridan, Wyo.	438
Summount, N. Y.	380
Tucson, Ariz.	358
Tuskegee, Ala.	804
Waco, Texas.	308
Walla Walla, Wash.	355
Washington, D. C.	260
Whipple, Ariz.	600

Total. 29,833

GUARDIANSHIP

As of June 30, 1932, there were 83,623 beneficiaries under guardianship, of which 36,250 were incompetents and 47,373 minors. Of this total 74,949 were beneficiaries under legislation pertaining to the World War and 8,674 were beneficiaries of laws pertaining to other wars.

RETIREMENT FOR CIVIL EMPLOYEES

On June 30, 1932, there were 25,567 annuitants on the rolls, as compared with 22,650 as of June 30, 1931. Of those on the rolls as of the former date, 16,600 were retired for age, 5,973 for disability, 1,590 after 30 years service, and 1,404 on account of involuntary separation. The oldest annuitant on the roll, according to the records in his case, is nearly 112 years of age. On June 30, 1932, the average annuity paid under the act of May 19, 1930, was \$955.32. The annual value of the roll was \$24,424,666.24.

FINANCE

The actual net disbursements for all purposes (including adjustments on lapsed appropriations) under the Veterans' Administration during the fiscal year ended June 30, 1932, aggregated \$869,099,937.38. The actual net disbursements from each appropriation of the Veterans' Administration during the twelve months ending June 30, 1932, were as follows:

Appropriations	Disbursements
Administration, medical, hospital, and domiciliary services.	\$103,400,197.64
Printing and binding.	174,267.31
Hospital and domiciliary facilities and services, Veterans' Administration. ...	12,875,744.03
State and Territorial Homes.	785,946.91
Army and Navy pensions.	232,509,428.65
Military and Naval compensation.	313,290,833.03
Military and Naval insurance.	123,740,592.58
Adjusted service certificate fund (death claims).	23,215,621.33
Adjusted service and dependent pay.	2,480,264.29
Vocational rehabilitation.	*17,109.11
Military and Naval family allowance.	5,699.35
Miscellaneous.	4,818.00
Trust funds:	
United States Government life insurance fund.	†28,736,667.22
Army allotments.	2,897.60
Navy allotments.	61.50
Marine Corps allotments.	74.17
General post fund.	213,639.03
Horatio Ward fund.	17,251.24
Total.	\$841,436,894.77
Civil Service retirement and disability fund.	27,470,075.06
Canal Zone retirement and disability fund.	192,967.55

* Credit.

† Includes encumbrances.

WATERWAYS AND HARBORS

WATERWAYS AND HARBORS

BY LYTLE BROWN

MAJOR GENERAL, U. S. A.; CHIEF OF ENGINEERS, WAR DEPARTMENT

INLAND WATERWAYS

Location and Description.—The principal systems are the Great Lakes, together with the New York State Barge Canal and the Hudson River; the Mississippi system, including the Mississippi, the Missouri, the Ohio, the Illinois to Chicago, and their important tributaries; the rivers of the Atlantic Coast and the intracoastal waterways connecting them; the rivers of the Gulf Coast, and the intracoastal waterway system extending from Pensacola *via* New Orleans down the Texas coast to Corpus Christi, connecting with the numerous southern Louisiana waterways and with the Mississippi system; the San Joaquin-Sacramento system in California; the Columbia system in the northwest; and the smaller Pacific Coast rivers. These are improved or in course of improvement over stretches and to depths commensurate with their commercial importance and with the benefits to be derived from them.

Channel Depths.—The Great Lakes, which are really inland seas, have natural deep water except in the connecting channels. From Superior to Erie the connecting channels have been artificially deepened to a depth of at least 21 feet. The River and Harbor Act of July 3, 1930, provides that these depths are to be increased to provide for the passage of vessels of 24-foot draft. The more important harbors have depths equal to existing channel depths. The Barge Canal, which the Secretary of War was authorized and empowered to take over from the State of New York, and the intracoastal system from Trenton, N. J., to Wilmington, N. C., have depths of 12 feet. The Mississippi has a 9-foot depth from Baton Rouge to St. Louis and 6 feet from St. Louis to St. Paul. The River and Harbor Act of July 3, 1930, authorizes the construction of a channel with 9-foot depth to Minneapolis. The Missouri is being improved to afford a channel

6 feet deep from its mouth to Sioux City, Iowa. The Ohio now has a 9-foot channel throughout its length, with 6 to 9 feet on its main tributaries. The Illinois Waterway connecting Lake Michigan with the Mississippi River has a 9-foot project. The Sacramento has a 10-foot project. Included in the intracoastal waterways is a channel which, when completed, will provide 6-foot depth across southern Florida *via* the St. Lucie Canal, Lake Okeechobee and the Caloosahatchee River. The project depths mentioned above are the depths toward which the War Department is working. They have not yet been attained in all cases, due to limitations as to time and the availability of funds. However, work is progressing as rapidly as funds will permit.

Status of Water Transportation.—

Inland waterway transportation, after a widespread decline coincident with the extensive development of railroad facilities throughout the country, has, in the past ten or fifteen years, shown a pronounced increase. The trend toward a more extensive use of waterways is due to a number of causes. Among these is the realization that under suitable conditions as to character of traffic, origin and destination with respect to waterways, suitable channels, and modern carriers and terminals, water transportation is inherently cheaper than any other form. The increases in railroad rates have imposed a heavy burden upon the lower classes of traffic, which has made imperative the demand for more economical transportation. Waterways are particularly valuable in the handling of raw products and low grade commodities for which the economic necessities of the country demand low transportation costs. There is a growing realization that the three means of internal traffic, *viz.*, railroads, waterways and highways, are properly co-operative rather than competitive, and that the development of each of them

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is not only of benefit to the public at large but also to all transportation agencies concerned. There is realization of the necessity of providing modern and efficient carriers, terminals, and transshipment facilities. In no section of the country is this more evident than in the Mississippi Valley. In addition to the established services of the Inland Waterways Corporation, numerous private and contract carriers afford service over this system of waterways. On the upper sections of the Ohio system there has long been intensive traffic, such as the coal movements on the Monongahela, Allegheny, and Kanawha, and on the Ohio itself. Since the completion of improvements which provide 9-foot navigation throughout the year from Pittsburgh to New Orleans, large sums have been expended for the construction of modern floating plant and port facilities, and until the depression in general business during recent years, the tonnage transported increased rapidly. In spite of the handicaps imposed by this depression, the decline in tonnage over this inland water route has not been marked. The importance of our national waterways system, the need of completing it and of intensively developing its traffic, in coordination with other parts of the transportation system are appreciated by the people at large.

The Inland Waterways Corporation was created June 3, 1924, by an act of Congress. It represents a reorganization of the Federal Barge Line created during the war, and in its present form is a corporation, functioning like any other, but controlled by the Government through the Secretary of War. The present chairman and executive officer is Major General T. Q. Ashburn. It has for some time been operating a fleet of modern barges and towboats on the Mississippi River from Minneapolis to New Orleans, thence *via* connecting waterways to Mobile, and thence up the Warrior system to Birmingham. Operations have been extended to Peoria, on the Illinois River, and will probably be extended to Chicago and Kansas City during 1933. These were

the only extensions contemplated at the time the Act was passed, and the law specifically prevents operations on the Ohio River. The barge line handles all kinds of freight, low, medium and high grade. During the calendar year 1931, it transported 1,533,915 tons of commerce, of which 1,250,043 tons pertained to the Mississippi Division and 283,872 tons to the Warrior Division. A total of 52,164 tons of commerce was interchanged between the respective divisions, hence the net total of the commerce carried by the corporation on all divisions was 1,481,751 tons. The object of the Corporation is to demonstrate the importance and the feasibility of inland waterway transportation.

NEW WATERWAY PROJECTS

Improvements.—By the River and Harbor Act approved July 3, 1930, Congress adopted a total of 174 projects for waterway and harbor improvements in the United States. Eighty-five of these were for the improvement of rivers and canals, and 89 were for improvement of ports and harbors.

Great Lakes.—Included in the above total are 17 projects for improvement of harbors and 4 for rivers and connecting channels of the Great Lakes system. These include both new and the extension of existing projects. The deepening of the channels of the Great Lakes to afford vessel drafts of 24 feet at low water datum for downbound vessels was actively carried on during the fiscal year 1932. Practically all work required in the channels between Lake Superior and Lakes Huron and Michigan have been placed under contract, the new breakwaters at Oswego Harbor are nearing completion, and contracts have been entered into for deepening the harbor areas. Under the River and Harbor Act, the Secretary of War was authorized to take over and operate the Oswego and Erie Canals from the State of New York. These are to be kept and maintained as barge canals only, and at present depths.

Intracoastal Waterways.—The extended improvements authorized on

the inland waterway along the Atlantic Coast were well advanced during the fiscal year. The section from Beaufort, N. C., to Cape Fear River has been completed and the section from Cape Fear River to the south boundary of North Carolina will be completed during the present season. The total length of the entire waterway from Delaware Bay to Miami, Fla., included in the projects for improvement, is about 1,169 miles, of which 955 miles have been completed, 44 miles have not yet been begun, and 170 miles require enlargement under the project. On the Gulf Coast active progress was made on the sections of the Louisiana-Texas intra-coastal waterway extending from New Orleans to Galveston Bay. Extension of the waterway eastward from Mobile to Pensacola is practically completed, and the remaining work has been placed under contract.

Mississippi System.—The Mississippi project provides for 9-foot navigation from Baton Rouge to St. Paul and Minneapolis. Ocean shipping goes to Baton Rouge. Considerable progress was made on the construction of locks and dams on the section of the upper Mississippi between the mouth of the Illinois River and Minneapolis. The main lock at Rock Island was completed during the year and work begun on the dam and auxiliary works. The second lock at the Twin City locks and dam, between St. Paul and Minneapolis, was completed and the necessary legal proceedings begun to acquire the site for the lock and dam at Alma, the next in importance on the program. The Tennessee River is to be improved in order to provide 9-foot navigation; preliminary investigations have been carried on in connection with the project. The Illinois Waterway project connecting the Great Lakes and Mississippi River systems, is rapidly nearing completion. The locks and other works on the Illinois River, begun by the State and taken over by the Federal Government, should be completed before the close of the present navigation season. The necessary alteration of the bridges crossing the Illinois and Des Plaines Rivers has already been or-

dered in accordance with law. Improvement of the Missouri River to secure a navigation channel 6 feet deep to Kansas City has been continued, and at ordinary stages a 6-foot channel is available from Kansas City to the mouth.

PORTS

Ocean Port Depths.—The maximum depth that has been provided in harbor channels is 40 feet at mean low water, except in the channel through the outer bar of San Francisco, where a depth of 45 feet has been authorized to afford safe navigation to deep draft vessels in the heavy swells there encountered. The depth of 40 feet has been afforded at New York Harbor and at other ports of primary importance to the Navy. While more than 90 per cent of the world's shipping draws less than 30 feet, yet to afford full, free and unimpeded navigation, a depth of 35 feet is provided at the principal harbors, and it may be said that for a port engaged in ocean shipping such depth is advisable when it can be provided at a cost commensurate with the volume of commerce.

New Port Projects.—The River and Harbor Act of July 3, 1930, provided for the adoption of 89 projects for port improvements in the United States. Included in this number are new projects and extensions of others adopted prior to the passage of the Act. Projects for the construction of a 40-foot channel at Newport News, Va., for a 26-foot channel to Stockton, Calif., and for the maintenance and extension of existing channel depths in existing projects have been initiated and carried on throughout the year. During the year 1932, 64 reports on proposed port projects were submitted by the War Department to Congress. Of these, 42 were favorable and 22 were unfavorable.

Port Facilities.—Plans of the Port of New York Authority, approved by Congress, provide for comprehensive coördination of rail and water facilities. Three belt line railroads are to be constructed which will provide connections between all railroads enter-

IX. DEFENSE AND ARMAMENTS

ing the area and the port terminals. The plan provides for a tunnel under the upper bay to connect the west and east sides of the harbor. During the construction period the Port Authority proposes the establishment of an organized motor transportation service to connect railroad and marine terminals. Port Newark, now an ocean terminal, has increased the facilities available to New York Harbor. Additional facilities will be provided when the terminals at Jamaica Bay are completed. The water terminals at the Port of Albany, which were officially dedicated in June, 1932, provide facilities for handling oil, grain, molasses, and lumber. At Philadelphia, large modern piers and wharves have been constructed. Rail connections to these are such that cargo may be transferred direct between ships and railroad cars. These piers are provided with excellent transit sheds and storage facilities. New grain elevators and modern coal loading piers have recently been constructed here. Wilmington, Del., has a modern ter-

minal with space for several ships. Extensive improvements have been made at Miami, Mobile, and Houston; the last port, constructed at the head of an artificial channel, handles a large tonnage of oil, cotton and general cargo. Improvements to port facilities are general along the entire Pacific Coast, particularly at Los Angeles, which handles a large tonnage. San Francisco, Portland, and Seattle have also made extensive improvements and extensions to their marine terminals. Improvements have also been effected at Portland, Me., Boston, Baltimore, Charleston, S. C., Jacksonville, Tampa, San Diego, Richmond, Calif., and at Tacoma.

INLAND WATERWAY COMMERCE

Inland Waterways Improved by the Government.—The following tabulation shows freight traffic for 1931 of waterways under improvement by the Federal Government, excluding short deep stretches of rivers (like the lower Hudson and Delaware), which are really approaches to ports:

Waterways	Short tons	Value
Hudson R., middle stretch.....	5,941,484	\$ 78,941,678
Hudson R., upper stretch.....	1,836,160	78,604,306
Delaware R., above Philadelphia.....	4,468,658	15,459,975
Chesapeake-Delaware Canal.....	990,940	50,769,956
Waterway from Norfolk, Va., to the Sounds of North Carolina.....	79,813	1,424,166
St. Johns R., above Jacksonville.....	164,505	12,423,841
All others, Atlantic Coast.....	15,750,822	451,509,619
Tombigbee-Warrior System.....	1,697,303	\$ 36,263,332
Southern Louisiana Waterways (excluding Mississippi R.).....	4,403,512	87,502,570
All others, Gulf Coast.....	19,257,287	223,801,441
San Joaquin R.....	914,573	\$ 28,044,242
Sacramento R.....	762,940	39,026,479
Columbia R. and lower Willamette below Vancouver and Portland (excluding ocean commerce).....	6,500,078	37,689,192
All others, Pacific Coast.....	8,744,250	75,771,245
Mississippi R., below Vicksburg (excluding ocean commerce)...	5,593,090	\$ 163,173,044
Mississippi R., Memphis to Vicksburg.....	2,403,526	140,756,428
Mississippi R., Cairo to Memphis.....	3,836,215	165,550,039
Mississippi R., Minneapolis to Ohio R. (Cairo).....	2,108,994	61,514,118
Ohio R.....	18,071,100	166,987,171
Monongahela R.....	15,948,620	74,697,547
Allegheny R.....	2,357,342	9,026,073
Kanawha R.....	1,867,335	9,899,762
All others, Mississippi system.....	6,550,518	\$ 39,272,034
All others in the United States.....	67,376,078	\$ 832,942,065
TOTAL.....	197,625,143	\$2,881,050,323

WATERWAYS AND HARBORS

Other Inland Waterways.—The following is for internal waterways other than those under improvement by the Federal Government:

Waterways	Short tons	Value
New York State Barge Canal.....	3,722,012	\$ 195,402,239
Lehigh and Delaware Division Canals, Pa.....	133,559	736,055
Chicago Sanitary Drainage Canal.....	922,413	3,986,228
New Basin Canal, La.....	247,712	3,446,949
All others of record.....	1,036,145	45,994,639
TOTAL.....	6,061,841	\$ 249,566,110

GRAND TOTAL, corrected for duplications because of commerce moving over two or more waterways..... 179,735,000 \$2,816,463,000

NET TOTAL, INTERNAL WATERWAY COMMERCE, 1922-1931

COMMERCE THROUGH THE PANAMA CANAL

Year	Short tons	Value
1922.....	111,800,000	\$3,177,900,000
1923.....	153,700,000	2,960,200,000
1924.....	173,200,000	3,446,000,000
1925.....	204,569,010	3,950,450,000
1926.....	217,000,000	3,680,000,000
1927.....	219,000,000	3,930,000,000
1928.....	227,300,000	3,838,000,000
1929.....	245,894,000	3,871,300,000
1930.....	226,760,000	3,557,000,000
1931.....	179,735,000	2,816,463,000

Fiscal Year	Intercoastal ¹	Total
1923.....	8,068,553	19,567,875
1924.....	13,527,378	26,994,710
1925.....	9,496,259	23,958,836
1926.....	9,871,210	27,747,541
1927.....	11,365,592	31,078,000
1928.....	10,833,443	33,186,394
1929.....	11,084,212	34,342,567
1930.....	11,174,429	33,633,860
1931.....	9,862,020	28,092,736
1932.....	7,417,742	22,184,958

¹ Included in coastwise figures.

COASTWISE COMMERCE

STUDY AND SURVEYS OF RIVERS

Port	Tonnage both ways	Value
Portland, Me.....	2,036,543	\$ 58,784,565
Boston, Mass.....	13,290,560	436,382,583
Providence, R. I.....	4,304,237	378,344,011
New York, N. Y.....	36,120,455	1,805,597,864
Philadelphia, Pa.....	16,164,505	501,416,743
Baltimore, Md.....	3,939,607	210,169,893
Norfolk-Newport News, Va.....	19,058,124	385,689,415
All others, Atlantic Coast.....	25,542,526	1,027,209,674

For the purpose of formulating plans and determining methods for the most practicable utilization and control, and coördination of plans for improvement and maximum utilization in the best interests of the public and private interests concerned, an extensive inventory of the potential resources of principal rivers is now being made by the Engineer Department. The study as authorized by Congress in the River and Harbor Acts of 1925 and 1927, provided for the examination, in connection with the Federal Power Commission, of those navigable streams and tributaries on which power development appeared feasible. The Mississippi River Flood Control Act of May 15, 1928, directed speedy prosecution of these studies and surveys and also directed the preparation of plans for certain flood control projects on tributaries of the Mississippi. As a result of these studies, 112 reports were entirely completed up to June 30, 1932.

New Orleans, La.....	4,935,597	\$ 137,591,584
Galveston, Houston, Texas City, Tex.....	11,880,273	316,992,181
The Sabine Ports.....	18,669,825	178,012,786
All others, Gulf Coast.....	7,934,091	169,025,687

NICARAGUAN CANAL SURVEY

The survey authorized by Public Resolution No. 99, 70th Congress, ap-

Los Angeles, Calif.....	17,105,420	\$ 834,163,007
San Francisco Bay and Harbor, Calif.....	21,493,865	874,754,531
Portland, Ore.....	3,318,962	188,460,293
Tacoma, Wash.....	1,361,589	60,672,433
Seattle, Wash.....	4,711,625	304,758,868
All others, Pacific Coast.....	11,638,175	186,879,012

Ports of Hawaii.....	3,400,503	\$ 265,521,678
Ports of Alaska.....	136,666	19,223,145
Ports of Puerto Rico.....	854,238	86,732,624

TOTAL, all ports 227,897,386 \$8,426,382,577

TOTAL, ALL PORTS, corrected for duplications of receipts and shipments..... 113,948,693 \$4,213,191,289

IX. DEFENSE AND ARMAMENTS

FOREIGN AND DOMESTIC COMMERCE OF PORTS DURING THE YEAR 1931 (Short tons)

Grand Divisions	FOREIGN		DOMESTIC		GRAND TOTAL	
	Imports Tons	Value	Exports Tons	Value	Tons	Value
Atlantic coast.....	31,088,293	\$2,063,530,855	12,532,733	\$1,866,676,240	226,109,486	\$9,806,713,520
Gulf coast.....	3,672,893	132,886,305	13,830,153	530,358,662	52,821,847	1,028,800,122
Pacific coast.....	2,614,261	252,047,180	12,477,698	387,428,959	88,724,926	3,187,244,291
Great Lakes.....	4,016,170	92,891,006	9,293,942	65,967,850	149,303,860	2,067,768,149
Grand total unadjusted.....	41,391,617	\$2,541,355,346	48,134,526	\$2,850,431,711	516,960,119	\$16,090,526,082
Adjusted total, eliminating all known duplications.....	41,391,617	\$2,541,355,346	48,134,526	\$2,850,431,711	290,594,187	\$ 9,086,373,967

Total commerce of the United States, 1931, adjusted total..... 445,648,000 \$14,935,000,000

proved March 2, 1929, was completed on July 16, 1931, and a final report was submitted by the Chief of Engineers on December 5, 1931, which is published in House Document No. 139, 72nd Congress, 1st Session. The survey indicated that the most feasible route for a canal across Nicaragua begins at Brito on the Pacific, follows the Rio Grande valley to Lake Nicaragua, crosses the lake to the mouth of the San Juan River, follows the San Juan River 48 miles, then crosses the San Francisco flats to the east divide, and goes down the Rio Desado Valley to the Caribbean near Graytown. The canal would be 173 miles long, 70 miles of which is through Lake Nicaragua. The bottom width would vary from 300 feet in cuts to 500 feet in the sea-level sections, and the depth would be 40 feet. The lake would be regulated between 105 and 110 feet above sea level, and this difference in elevation is to be overcome by flights of three twin locks on each side, each lock having usable dimensions of 1,200 feet by 125 feet.

MISSISSIPPI RIVER FLOOD CONTROL

Expenditure.—Four years and a half after the approval of the law enacted by Congress for the flood control of the alluvial valley of the Mississippi River, finds remarkable progress along the river from Cape Girardeau, Missouri, to New Orleans. Of the \$325,000,000 authorized for the project \$174,500,000 has been appropriated and expended, obligated by contract, or awaiting Court awards, before the next appropriation becomes available.

Plans and Progress.—The plan set forth in the adopted project proposes to protect, except at several specific locations, the levee lines in the alluvial valley of the lower Mississippi against overtopping by the maximum flood predicted. This valley extends from Cape Girardeau, Missouri, to the Gulf of Mexico and consists of the St. Francis, the Yazoo, the Tensas (composed of the Boeuf and Macon Valleys), and the Atchafalaya Basins, as well as the alluvial lands around Lake Pontchartrain. The protection

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is to be afforded by raising existing levees about three feet and strengthening them greatly. North of the Arkansas River, floods will be confined generally to the main leveed channel but a limited area in the St. Francis Basin, in southeast Missouri and the city of Cairo, Ill., is to be given additional safety by a floodway between Birds Point and New Madrid, Missouri, which will, during extraordinary floods only, become an adjunct of the main channel and thereby widen the river and hold down stages. South of the Arkansas River, flood waters in excess of what the leveed channel of the main river will carry safely will find their way to the Gulf through floodways west of the river. Studies are in progress having in view an increase in the carrying capacity of the main leveed channel so as to reduce ordinary flood stages and the size of floodways. Protecting levees along floodways are proposed on the edges to restrain the waters within them and to protect the good lands outside. These protecting levees are to be located so as to reclaim the maximum amount of land that is economically justified, and where there are such levees the project contemplates using the same levees but strengthening them. New Orleans has been given additional protection by a floodway from the river into Lake Pontchartrain through a controlled spillway at Bonnet Carre 33 miles above the city.

Levee Work.—Of the estimated 570,000,000 cubic yards of earth required to be moved to complete the adopted project, over 260,000,000 cubic yards have been placed in the

levees being constructed in accordance with the plan. The yardage placed already exceeds that excavated in building the Panama Canal. During the month of August, 1932, over 17,500,000 cubic yards of earth were placed in the project levees. The setback levee of the Birds Point-New Madrid Floodway has been practically completed. All work on the Bonnet Carre spillway structure is completed and the side levees of the floodway are almost completed to final grade.

Revetments and Contraction Works.

—In addition to the levee work, revetments and contraction works are being constructed to prevent bank caving and to stabilize the channel in the interest of navigation. It is estimated that over one million linear feet of new revetments and about one-half million linear feet of dike contraction works will be required to complete the plan. At the present time, including repairs and replacements, about 400,000 linear feet of revetments have been placed and 130,000 linear feet of dikes have been constructed. Maintenance dredging of the navigable channel is being done annually during the low water season. The flood control navigation work on the lower Mississippi is the largest single piece of public work ever undertaken by the Federal Government. The local people have made a gallant fight against the menace of the Great River for two centuries. The winning of this fight is beyond the powers of any community, even of states, and for that reason the power of the Federal Government has been properly invoked.

ORGANIZATION OF THE NAVY

BY S. P. FULLINWIDER

COMMANDER, UNITED STATES NAVY, RETIRED

ADMINISTRATION

Secretary of the Navy.—The President of the United States is Commander-in-Chief of the Navy. By constitutional authority and supplemental legislative action, the President

delegates his authority in large part to the Secretary of the Navy, who administers the Navy Department in accordance with the law and with the funds appropriated by Congress. To assist the Secretary in his duties,

IX. DEFENSE AND ARMAMENTS

notably those pertaining to the maintenance and operation of the shore establishments, there is an Assistant Secretary of the Navy. In the absence of the Secretary, his authority and responsibilities devolve upon the Assistant Secretary.

The Staff.—While the head of the organization is civilian, in conformity with the American political code, the administrative personnel of the Navy Department is almost exclusively naval. The organization comprises two main groups of bureaus and offices; one for the maintenance of the personnel and material of the Navy, the other for the direction of its activities towards the objectives of the naval policy. The former group constitutes a routine staff, the latter a general staff, or in American phraseology, the Office of Naval Operations.

BUREAUS AND OFFICES OF THE NAVY DEPARTMENT

Classification.—The personnel bureaus are the Bureau of Navigation and the Bureau of Medicine and Surgery. The material bureaus are the Bureau of Construction and Repair, Bureau of Engineering, Bureau of Ordnance, Bureau of Aeronautics, Bureau of Supplies and Accounts, and Bureau of Yards and Docks. Each of the bureaus is headed by an officer of the rank of rear admiral.

The Bureau of Navigation has cognizance of matters of enrollment, training, administration, and discipline of the personnel of the Navy. It supervises the Naval Academy, where midshipmen are educated and trained for service as commissioned line officers of the Navy, and provides for the subsequent technical education, examination and promotion of officers. For the enlisted personnel, the Bureau maintains recruiting offices throughout the country, training stations where recruits are given elementary naval training, and technical schools for specialized training. While the Bureau is charged with the training of individuals, it is not responsible for ship efficiency. It fixes the proper complements of officers and men for each type of ship, assigns in-

dividuals to specific duty, and keeps the service records of all officers and enlisted men. The Bureau controls the Naval Observatory, the Hydrographic Office, and the Naval Home. The Hydrographic Office furnishes charts and navigational publications to the naval service and to commercial vessels as well. The publications include Sailing Directions, Lights Lists, Radio Aids to Navigation, Notices to Mariners, Notices to Aviators, the Naval Air Pilot, and the Daily Memoranda in regard to changes in Dangers and Aids to Navigation. It conducts hydrographic surveys in foreign waters.

The Bureau of Medicine and Surgery administers the naval hospitals and the medical work on board ship through the Medical Corps, Dental Corps, Hospital Corps, and Nurse Corps. It supervises hygiene both ashore and afloat. It examines recruits before enlistment, conducts medical examining boards, and keeps medical records of all officers and men of the Navy and Marine Corps for reference in case of disability and for the information of the Pension Office.

The Bureau of Construction and Repair, in cooperation with other bureaus concerned, designs and supervises the construction of ships of the Navy, and has cognizance, through its organizations at naval stations, of the docking and repair of vessels. The Bureau maintains an experimental model basin at the Navy Yard, Washington, D. C., where models not only of naval vessels but also of commercial craft are tested.

The Bureau of Engineering has cognizance of the design, construction, and maintenance of the power plants of vessels and of radio and other communication apparatus for the Navy, both ashore and afloat. It conducts much research and development work and keeps the service informed on engineering topics such as tests, developments, improvements, and discussion of material casualties.

The Bureau of Ordnance designs and manufactures, or procures, weapons and ammunition and the range-

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finding and fire control apparatus required for their use. It operates numerous plants, including the Naval Gun Factory, Washington, D. C., where ships' guns and mounts and various other ordnance material are manufactured; the Naval Torpedo Station, Newport, R. I., which manufactures torpedoes; the Naval Powder Factory, Indian Head, Md., where a large part of the powder used by the Navy is made; the Naval Proving Ground, Dahlgren, Va., where all naval guns are tested before their installation on board ship, and where much experimental work is carried on; ammunition depots, mine depots, etc.

The Bureau of Aeronautics administers the appropriations for the development, procurement, and operation of aircraft for the Navy and Marine Corps. In cooperation with the Bureau of Navigation, aviation training stations and service schools are maintained at Pensacola, Fla.; Hampton Roads, Va.; and San Diego, Calif. At the Naval Academy, midshipmen are given an indoctrinal course in aviation, including flight instruction in various types of aircraft. A lighter-than-air training station is maintained at the Naval Air Station, Lakehurst, N. J., for instruction of officers. A number of other schools and post-graduate courses are provided for the education and training of officers and enlisted men in aviation specialties. Approximately 11,740, or about 14.7 per cent, of the enlisted men of the Navy are assigned to aviation activities.

The Bureau of Supplies and Accounts officered by the Supply Corps, handles the finances of the Navy, pays the personnel, both civil and naval, and makes all contracts involving funds. It provides food and clothing for all enlisted personnel and maintains the stock of materials for itself and other bureaus which must be kept in store ready for use or for the emergency of war.

The Bureau of Yards and Docks, officered by the Civil Engineer Corps of the Navy, has cognizance, with few exceptions, of the design, construction, and maintenance of the public works

and public utilities of the Navy. As all its services are rendered for the facilitation of the work of other organizations of the Navy, it consults each of them in matters that concern it and lays out its plans accordingly.

OFFICE OF NAVAL OPERATIONS

The Office of Naval Operations accepts ships, men, and supplies from the maintenance side of the Department, works them up into efficient tactical organizations, and operates them in peace and war to carry out the policies of the Government. The Chief of Naval Operations is ranking officer of the Navy by virtue of his office. The office comprises several divisions. The Fleet Training Division is in charge of drills, target practice, engineering competition, and athletics. By a system of competition and observation it promotes ship and fleet efficiency. The Office of Naval Intelligence collects information of naval import, both foreign and domestic, and disseminates same to the naval service and to other interested government departments. The War Plans Division prepares plans for possible war operations, such plans usually providing for the mobilization of the active and reserve forces, concentration in suitable areas, arrangements for supply and maintenance of the fleet, and decision as to objectives. The Material Division coordinates the arrangements of the material bureaus for repairs of vessels. The Ship Movements Division manages the ships and fleets in commission. The Naval Communications office handles all radio and telegraphic operations.

JUDGE ADVOCATE GENERAL

The Office of the Judge Advocate General has cognizance of all legal affairs of the Navy Department, both civil and military. The civil division handles those pertaining to legislation and general and naval law, admiralty court cases, collections of indebtedness to the government, sales of naval vessels, inventions and patents, real estate matters, and, in general, such other legal business as arises in the conduct of any great corporation. The

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military division supervises the legal part of the discipline of the navy personnel, reviews the records of courts-martial previous to action by the Secretary of the Navy, and supervises the naval prisons.

MISCELLANEOUS DIVISIONS AND BOARDS

The Navy Yard Division (Office of the Assistant Secretary) handles matters pertaining to the civil service employees of the naval establishment within and without the continental limits of the United States, supervises technical operating equipment at navy yards, and administers safety engineering work at naval establishments.

The Naval Petroleum Reserve Office has cognizance of all matters relative to naval petroleum and oil-shale reserves and the general policy regarding future oil supplies for the Navy.

The Office of Technical Aide administers the naval research laboratory at Bellevue, D. C.

The Joint Board is an advisory body to the Secretaries of War and the Navy upon major questions affecting the two services jointly. Such questions are referred to it by either secretary or may originate within the Board as a result of its constant study of subjects and methods for the advancement of the national defense, the promotion of efficiency and cooperation, and the elimination of unnecessary duplication.

The Aeronautical Board is charged with the preparation of plans to prevent competition in the procurement of material; recommendation regarding projects for experimental stations on shore, coastal air stations, and stations to be used jointly by the Army and Navy; and with the consideration of estimates for appropriations for the aeronautical programs of the Army and Navy with a view to the elimination of duplication and a helpful cooperation between the services.

The General Board is charged with the shipbuilding policy of the Navy and is called upon by the Secretary for recommendations regarding im-

portant matters of departmental policy.

The Navy Budget Office is the representative of the Bureau of the Budget which controls the financial estimates for the Navy. After receiving the President's orders, the Budget Officer allots to each department of the Government the sum it is to have for the year. The Secretary of the Navy, in council with the bureau chiefs, then allots to each of them a sum, the total of which will exhaust the allotment, and a bill is prepared for submission to Congress, which controls the policy, in a great degree, through its appropriations.

Secretary's Council.—The various branches of the Department are coordinated by the Secretary's Council, at which the chiefs of bureau and other officers periodically meet to discuss and arrange for current work.

UNITED STATES MARINE CORPS

The United States Marine Corps is a complete military organization within the naval establishment. Its organization and administration are similar to those of an army, with modifications to meet naval requirements. A marine is a sea soldier serving either ashore or afloat as circumstances require. The Corps is headed by the Major General Commandant, whose headquarters are in the Navy Department, Washington, D. C. The present strength of the Corps is about 1,150 commissioned and warrant officers and 18,000 enlisted men. While the primary function of the Corps is to furnish marine detachments for service on board ships of the Navy, and guards for naval stations, a conspicuous and most important function has been to provide expeditionary forces for service incidental to political disturbances and resultant strife abroad, notably in Nicaragua, Haiti, and China. Such foreign duty is always undertaken in cooperation with the Department of State and usually at the request, or with the consent, of the government of the foreign state concerned. The Corps maintains its own aviation organization.

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NAVAL SHORE STATIONS

The activities of the Navy ashore are varied and extensive, and for their operation it is necessary to maintain public works and utilities of vast proportions and in many parts of the world. At the navy yards are dry docks, piers, power plants, railroads, service lines, and other facilities and equipment required for the repair and provisioning of the sea and air fleets, training and hospitalization of personnel, storage of supplies, research and experimentation, and other industrial and military purposes. The physical work of maintenance of the Navy is carried on principally at the navy yards and other shore stations which are operated mainly by civilian personnel and directed from the Navy Department by the Navy Yard Division under the Assistant Secretary. The principal yards and stations are each industrially organized under a commandant who carries on the work of construction, repair, and supply of ships according to directions from the responsible bureaus in Washington which allot him the necessary funds for each task.

NAVAL SEA FORCES

Composition of the Fleet.—The major combatant strength of the Navy is concentrated in one large command, the United States Fleet, under a commander-in-chief. This fleet comprises four main forces: Battle Force, Scouting Force, Submarine Force, and Base Force. These forces are organized by types of vessel, based on geographical considerations and the requirements for peacetime training and operation. The Battle Force is composed of battleships, cruisers, destroyers, aircraft, the mine craft based at Pearl Harbor, and the fleet air base at that place. The Scouting Force is composed of cruisers, destroyers, aircraft, a training squadron, and the fleet air base at Coco Solo. The Submarine Force includes the New London, Coco Solo, the Pearl Harbor submarine bases, all submarines and

attending craft at these points, and the fleet submarines and their attending craft which normally base at San Diego. The Base Force comprises all auxiliary (noncombatant) vessels attached to the fleet, and is divided into two squadrons to operate with the Battle and Scouting Forces. The Battle Force habitually operates in the Pacific and the Scouting Force in the Atlantic, but at least once each year the entire fleet is concentrated in either the Pacific or Atlantic for strategical and tactical exercises. The fleet, or portions thereof, holds joint exercises with the Army, from time to time, to work out problems of coast defense.

The United States Asiatic Fleet is the second largest command. It is composed of cruisers, destroyers, submarines, gunboats, and auxiliaries. Owing to unsettled conditions in China and the consequent hazard to American lives and interests, the Asiatic Fleet maintains patrols in South China and on the Yangtze River; and, in addition, keeps cruisers and destroyers so distributed as to be ready for emergencies at affected ports. Marine contingents are maintained on shore at Shanghai and at the American Legation in Peiping.

Transport Service.—Besides the two fleets, there is usually a Special Service Squadron in commission, the Naval Transportation Service, a few vessels on detached duty, and some attached to naval districts.

NAVAL RESERVE

The Naval Reserve comprises three main classes; the Fleet Naval Reserve composed of ex-service men organized and ready for duty in the event of a national emergency; the Volunteer Naval Reserve of individuals, rather than organizations, eligible for general or special service according to their qualifications; and the Merchant Marine Naval Reserve of licensed officers who meet certain requirements as to service in public or private vessels of the United States.

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FUNCTIONS OF THE NAVY

By S. P. FULLINWIDER

COMMANDER, UNITED STATES NAVY, RETIRED

NAVAL POLICY

Formulation.—The functions of the Navy are indicated, in large measure, by the naval policy. Naval policy is the system of principles and the general terms of their application, governing the development, organization, maintenance, training, and operation of a navy. It is based on and is designed to support national policies and national interests. It comprehends questions of number, size, type, and distribution of naval vessels and stations, the character and number of the personnel, and the character of peace and war operations. The fundamental naval policy of the United States is the maintenance of a navy of sufficient strength to support the national policies and commerce, and to guard the continental and overseas possessions, of the United States.

Objectives.—More specifically, the general naval policy, as formulated by the Navy Department, includes, among others, the following objectives: create, maintain, and operate a navy second to none and in conformity with treaty provisions; make war efficiency the object of all training in time of peace; develop and organize the Navy for operations in any part of either the Atlantic or Pacific; organize the navy as far as possible so that expansion only will be necessary in the event of war; make the strength of the navy for battle the object of primary importance for exercising ocean-wide control of the sea for protection of American interests and of over-seas and coastwise commerce next in importance; support American interests, especially the expansion and development of foreign commerce, and to make every effort to assist the development of the American merchant marine; encourage, and endeavor to

lead in, the development of the art and of the material of naval warfare; give every encouragement to civil aviation with a view to advancing the art and providing aviators and aircraft production facilities available for war; cultivate friendly and sympathetic relations with foreign nations; maintain a marine corps of strength adequate to support the navy by furnishing detachments to vessels of the fleet, guards for shore stations, garrisons for outlying positions, and by the maintenance in readiness of expeditionary forces; cooperate fully with all other departments of the government.

NAVAL BUILDING AND MAINTENANCE

Under the above general naval policy, the building and maintenance policy contemplates the construction and maintenance of an efficient, well-balanced fleet in all classes of fighting ships as allowed by treaty provisions, and the preservation of this status by building replacement ships and by disposing of old ships in accordance with continuing programs. Further, it is the policy to make superiority of armament in their class an end in view of the design of all fighting ships, and to provide great radius of action.

PERSONNEL

The personnel policy includes the maintenance of the personnel at the highest standard and in sufficient numbers to carry out the building, replacement, and operating policy; the development and coordination of systematic courses of instruction and training for officers, petty officers, and enlisted men; and the organization and training of naval and marine corps reserves to provide the personnel necessary for mobilization.

NAVAL CONSTRUCTION AND EQUIPMENT

EDUCATION AND TRAINING

The operating policy provides for a general scheme of progressive education and training of the personnel, the assembly of the active fleet for a period of not less than two months each year for exercises in strategy and tactics, the maintenance in commission, fully manned and in active training, of all fighting ships possible, the maintenance of reserve vessels in condition for active service, and the exercise of such economy in expenditures as is compatible with battle efficiency.

NAVAL STATIONS

A system of outlying naval and commercial bases suitably distributed, developed, and defended, is one of the most important elements of national strength; therefore, it is the policy to maintain all existing stations that would be needed in the event of war, to further develop the stations in Hawaii, the Canal Zone, and the San Francisco Bay area, and to encourage the development of commercial facilities that would be useful to the navy in time of war.

COMMUNICATIONS

The communications policy comprises the maintenance of a naval communication system based on the requirements of the fleet in war, the development of such radio communications as may aid maritime and aviation interests, cooperation with the radio and cable organizations of the United States and other countries, and the provision and operation of a network of long range radio stations for communication with the fleet and the merchant marine in any part of the world, and with overseas possessions.

NAVAL PUBLICITY

Recognizing the great educational value of imparting information bearing on naval matters through appropriate public and private institutions of our country, it is the policy to furnish the public with full information of the navy, when it is not incompatible with military secrecy, including its activities at home and abroad, its educational features, and its contributions to science and industry.

NAVAL CONSTRUCTION AND EQUIPMENT

BY PETER BAIN

NAVAL CONSTRUCTION CONSULTANT

DISARMAMENT AND ECONOMIC PRESSURE

Public Policy.—In common with most other lines of productive industrial activity, naval construction with its correlated equipment adjunct was at a low ebb during 1932, sinking, not improbably, to a level not hitherto reached in any peace-time decade. Neither nationally nor internationally were developments of a nature to modify, alter materially, or upset altogether, existing treaty agreements; consequently, our *laissez faire* policy of immediately preceding years was permitted to function unchanged, although by no means unchallenged because deemed impolitic in many quarters and from many angles. The circumstance that a World Disarmament Conference was in session at

Geneva, Switzerland, for the greater part of the first half of the year and at which we were duly and capably represented, appeared to justify our refusal to initiate and carry through any program of naval expansion. In other words, our resolve to continue the policy already operative—defensively weak though it was—expressed the sincerity and material worth of our attitude towards the subject of worldwide disarmament; therefore, in addition to its possible classification as a gesture of goodwill and whole-hearted coöperation, it also made a contribution of spirit and in kind around which conference deliberations might well find a rallying point of reciprocal interest. Be the immediately foregoing as it may, the Disarmament Conference adjourned

IX. DEFENSE AND ARMAMENTS

until early 1933 without visible or tangible evidence of achievement in any direction and with expectation relative to the ensuing session unmistakably dimmed.

The Economic Phase.—Arising from prolongation of the crippling and devastating effects of a worldwide economic paralysis, and having special regard to our own national well-being therewith involved, arrestment of a program of naval expansion because of the disarmament contingency became further influenced and affected—confirmed as a matter of fact—by the formulation of various schemes and plans having for their objective the curtailment in substantial measure of Government departmental expenditures, to the end that the National Budget be balanced with the minimum recourse to imposition of new tax burdens. With a stage so set, proponents of new construction programs, however generously distributed over a period of years for fulfillment, were faced by great odds. It may be said, then, that the economic rather than the disarmament phase became the controlling factor. Notwithstanding, when the \$616,250,000 Vinson Naval Replacement Bill was approved toward the end of January by the House Naval Affairs Committee without a dissenting voice and was subsequently postponed indefinitely for action by Congress, the Committee felt itself thus obligated more by motives of economy and less by hopes of a satisfactory outcome of the Disarmament Conference. Naturally one harks back to the London Conference of 1930 and to Jan. 1, 1931, when the conference agreements went into effect and, in doing so, hazards the opinion that immediately thereafter was the “time and tide” to launch such a program as that embodied in the Vinson Bill. Had such action then been taken, essential naval expansion in 1932 would have been well on the way,—far enough, probably, to have been beyond criticism or interference on the score of economy. As in some measure justifying the conclusion so drawn, withholding of the Vinson Bill from Congress brought forth a storm of criticism in the

midst of which not even the economic excuse escaped; thus, *The New York Times*, editorially, as a fair sample: “Economy in the sense of curtailment should have no more place in a government’s policy toward its navy than it has in a city’s maintenance of its fire department. The accident of war is as inescapable as is the accident of fire. When either occurs, it is too late to repair the damage worked by a cheeseparing policy. We hope that Mr. Vinson will press his Bill at the earliest practicable moment and that his committee will report it promptly.”

The Vinson Bill.—Bearing, as it does, directly on new construction and equipment, the \$616,250,000 Vinson Naval Replacement Bill sought to provide a 10-year program involving the construction of 120 vessels of a total tonnage of 303,240 tons by 1942. Constituent of the program were three aircraft carriers,—two of about 20,000 tons each and one of about 15,200 tons; nine 6-inch gun cruisers, one at least to be of flying-deck type and of about 10,000 tons; 13 destroyer leaders, each of about 1,850 tons; 72 destroyers, each of about 1,500 tons; and 23 submarines. Distribution of vessel-type costs were as follows: Aircraft carriers, \$71,408,000; eight 6-inch gun cruisers, \$122,120,000; one flying-deck cruiser, \$15,011,000; destroyer leaders, \$57,083,000; destroyers, \$272,520,000; submarines, \$78,108,000. Estimated annual cost by fiscal years was:

1933, \$18,001,000	1934, \$54,671,000
1935, 89,844,000	1936, 88,470,000
1937, 90,110,000	1938, 69,997,000
1939, 49,092,000	1940, 36,208,000
1941, 42,397,000	1942, 45,473,000

The construction program embodied in the Bill was worked out by the General Board of the Navy with approval by high ranking officers and by Navy Secretary Adams but disapproved by President Hoover. During the House Committee hearings, at which, among others, both Secretary Adams and Admiral Pratt, chief of naval operations, appeared as witnesses, it developed that so far as naval armaments were concerned, no reductions of moment

NAVAL CONSTRUCTION AND EQUIPMENT

below those fixed by the London Treaty were anticipated to result from the Geneva Conference. Endorsement of the Bill by Secretary Adams and Admiral Pratt,—the latter the President's most trusted naval adviser—was believed to indicate that while disapproving of the Vinson Bill, Mr. Hoover was not unfriendly to the general construction program therein contained. Otherwise construed, the economic rather than the disarmament situation affected more immediately our national wellbeing.

Warning Against Disarmament Failure.—As indicative, however, of his being keenly alert to the ever-present urgency of maintenance of a dependable national defense organization, devolving primarily on naval equipment, Mr. Hoover in a statement on Oct. 26, the eve of Navy Day, took occasion to point out that "failure of the Disarmament Conference would compel the United States to build up its navy to the full strength provided in the London Agreement, equal to that of the most powerful in the world." His remarks, while looked upon as a second and further attempt to knit and galvanize the Geneva negotiations toward a successful outcome, served also as a reminder to our citizens and the world at large that the first and most solemn obligation placed upon the Federal Government by the Constitution is that of national defense. The administration, he said, "had spared no reasonable effort to bring about an agreement of all nations on arms reduction on the ratio basis of the London Treaty" and, as it were, to defend and support his preference for a meantime economic policy rather than one of naval construction and expansion, he made the point that "our patience in these negotiations has never for a moment jeopardized the safety of the United States." Mr. Hoover's armaments reduction plan as submitted to the Geneva Conference and still being studied through bureaus and committees pending resumption of the plenary sessions, called for one-third reduction in all categories. On May 6, the Senate by 44 to 21 votes, passed what is known as the Hale Bill, its

aim like that of the Vinson Bill of the House being the building up of our naval equipment to the strength prescribed by the Washington and London Treaties. The Bill authorized the President to put the required steps into effect—new construction, replacement of over-age vessels, and modernization of those now in service, as far as the Treaties permit. In the event of an international agreement for the further limitation of armaments, the President may suspend all or any construction so authorized. The Hale Bill went to the House Naval Affairs Committee where, with the Vinson Bill, it awaits what has been termed a more propitious time for action.

EFFECTS OF EXPENDITURE CURTAILMENT

Expenditure Items.—Economy having been as it were the ruling principle in Federal Government activities during 1932, no surprise need be occasioned or expressed because of its resultant effects on our first line of defense,—the navy. Practice of the most stringent economy checked authorized new construction, limited ship repairs and maintenance generally, and was responsible for ship lay-ups for lack of men to man them, due to reduction of enlisted personnel. From latest figures available, naval expenditures totalled \$353,628,362, or approximately \$33,000,000 less than the estimated amount. Under-expenditures belonging to Increase of Navy Account, totalling \$14,172,000, were due to no expenditures on six destroyers for which moneys had been included in the Appropriation Acts; reduction in expenditure on vessels being built in naval establishments; reduction in expenditures on account of delays in procurement and delivery of material and primarily attributable to changes in design for the purpose of incorporating improvements of military characteristics based on experience, experimentation, and research; reductions in the costs of materials; and non-payment of obligations because of unsettled royalty litigation pending in the Court of Claims. It should be noted that altogether there was available for Increase of the Navy the

IX. DEFENSE AND ARMAMENTS

sum of \$77,507,412, that the estimated expenditure was \$53,375,000, and that the actual expenditure was \$39,203,000 or \$14,172,000 as already noted. Of the balance, \$18,199,638 of the \$33,000,000 under-expenditure, consists of balances at the credit of a number of appropriations but which must be kept available to meet outstanding obligations and, to a minor extent, unforeseen contingencies. For the fiscal years 1931 and 1932, it is estimated that a total of about \$17,000,000 will be turned back to the Treasury, an average of \$8,500,000 as compared with an average for the previous five years of approximately \$4,900,000.

1934 Construction Budget.—In the Budget presented to the 73rd Congress, the naval estimates for 1934 showed a net decrease of \$10,807,000 from those of 1933. Among the reductions which totalled \$32,244,000, was that of modernization of battleships at \$9,450,000. For the completion of the modernization of two battleships and the carrying forward of similar work on another now in dock, \$4,400,000 is provided. In the sphere of new construction, an increase of \$21,437,000 is scheduled, thereby bringing the total for 1934 under this category up to \$38,845,000. Together with \$5,000,000 to be transferred from the Naval Supply Account Fund and an estimated balance to be carried over from 1933, there will be available for new construction in 1934 a total of \$53,380,000. This will enable work to proceed at a normal rate of progress on all vessels now in process and, in addition, on one 8-inch gun cruiser to be laid down after March 1, 1933; on another such cruiser early in 1934, and on three or four destroyers to be laid down in the first half of that fiscal year. The 1933 appropriation for construction of new vessels was \$18,063,000. In addition, \$7,000,000 was authorized to be transferred from other appropriations and a balance of \$37,817,000 was carried over from 1932, making a total availability for new construction of \$62,880,000 in 1933. While the estimates for new construction in 1934 are about \$21,-

000,000 in excess of the appropriation for 1933, availability for the former will be some \$9,500,000 less than for the latter, the difference being largely accounted for in the estimated savings due to the continuation of provisions of the Economy Act and an anticipated reduction in labor costs. The 10,000-ton, 8-inch gun cruiser to be laid down in 1933 but not prior to March 1st, in conformity with London Treaty terms, is to be designated the *Quincy* as a compliment to Secretary of the Navy Adams whose birthplace was Quincy, Mass. By a coincidence, the plant of the successful bidder for the construction of the vessel,—Bethlehem Shipbuilding Corporation—is also located at Quincy. The Bethlehem bid was not only the lowest of four received but so much so as to partake of the nature of a "bargain" bid, being \$2,254,000 under the award figure of a sister vessel, the *Tuscaloosa*, at present building. The *Quincy* will be the sixteenth of the heavy cruisers—10,000-tons, 8-inch guns—allowed us by the London Treaty. Nine have been completed and commissioned and six are still under construction. The *Quincy* brings the tonnage of this class and type vessel to 152,850 and within 27,150 tons of the 180,000 tons, our treaty quota. The number of vessels is limited to 18. Substitution of 15,166 tons of 6-inch gun cruisers was permitted for each of the last three 10,000-ton, 8-inch gun cruisers. Great Britain was limited to 15 and Japan to twelve 10,000-ton, 8-inch gun cruisers, respectively.

RELATIVE TREATY STATUS

Except in the category of heavy cruisers,—10,000-ton, 8-inch gun type—we make a relatively poor showing in new construction—laid down or appropriated since the Washington Treaty. Our total of 40 vessels of 197,640 tons compare with Great Britain's 148 vessels of 472,238 tons, Japan's 164 of 410,467 tons, France's 196 of 507,737 tons, and Italy's 140 of 281,872 tons. While it is true that miscellaneous craft—sloops, torpedo boats, river gunboats, escort and mine vessels, tenders, etc., as types not lim-

NAVAL CONSTRUCTION AND EQUIPMENT

ited by the Treaty—figured large in the vessel numbers and tonnages of the other four countries indicated, the strikingly significant fact remains that our new construction response has been far from commensurate and that in such categories as light cruis-

ers, destroyers, and submarines we have made little or no attempt to exercise our prerogative and privileges. In the accompanying table are given the strengths of the various vessel categories authorized and bound by the London Treaty:

	United States	Great Britain	Japan
Capital ships.....	525,000	525,000	315,000
Aircraft carriers.....	135,000	135,000	81,000
8-inch cruisers.....	180,000	146,800	108,400
6-inch cruisers.....	143,500	192,200	100,450
Destroyers.....	150,000	150,000	105,500
Submarines.....	52,700	52,700	52,700

¹ 15,166 tons of 6-inch cruisers may be substituted for each of the last three 8-inch 10,000-ton cruisers.

Great Britain has contracts let for 3 cruisers of a total of 19,000 tons, while her appropriations cover 6 cruisers, 18 destroyers, and 6 submarines. Japan has appropriated for 2 cruisers of 17,000 tons total; 9 destroyers of 12,400 tons total; and 7 submarines of 8,900 tons total. The United States has three additional cruisers authorized but under Treaty terms they may not be completed before 1936, 1937, and 1938. Only

one of these has been appropriated for—the *Quincy*, already referred to. Relative to vessels laid down or appropriated for since the Washington Treaty, the following table throws not only the spotlight on our relative naval status but confirms in unmistakable manner Mr. Hoover's reference—already noted—to our "patience" since negotiations for armaments reduction were initiated:

	Battleships		Carriers		Cruisers		Destroyers	
	Number	Tons	Number	Tons	Number	Tons	Number	Tons
United States.....			1	13,800	¹ 16	152,900	² 11	16,500
Great Britain.....	2	67,400			25	210,260	54	73,831
Japan.....			1	7,600	20	160,875	63	89,016
France.....	1	26,500			19	152,902	58	111,197
Italy ³					17	124,086	42	53,184

	Submarines		Miscellaneous ⁴		Total ⁵	
	Number	Tons	Number	Tons	Number	Tons
United States.....	6	11,970	6	2,470	40	197,640
Great Britain.....	30	37,664	37	83,083	148	472,238
Japan.....	42	59,871	38	93,105	164	410,467
France.....	⁶ 81	79,223	37	137,915	196	507,737
Italy ³	54	44,651	27	59,951	140	281,872

¹ 2 additional authorized, but no funds, and can not be laid down until 1934 and 1935.

² Only 4 actually under construction, but contracts have been awarded for 8.

³ Italy's 1932-33 program has been appropriated for, but not yet announced.

⁴ Includes sloops, torpedo boats, river gunboats, escort vessels, mine vessels, tenders, etc.; types not limited by treaty.

⁵ United States, England, and Japan have each converted 2 ships to aircraft carriers since the Washington treaty; France, 1.

⁶ Includes *Promethee* and *Ondine*, sunk.

IX. DEFENSE AND ARMAMENTS

CONSTRUCTION PROGRAM

Need for Replacement.—Due to their continuing and well-rounded programs of naval construction, the other principal navies were, generally speaking, up to Treaty strength with relatively new ships. For lack of some such program, the United States is well under strength in certain categories, whilst in others, its ships are largely obsolescent. Although party to a holiday in new naval construction for one year from Nov. 1, 1931, this does not interfere with or affect construction undertaken previous to that date or the building of replacement ships. Practically every officer of our Navy Department from Admiral Pratt, chief of naval operations, down the list, holds the view that we must build if our naval equipment is to measure up to Treaty strength. Although in a comparatively strong position relative to battleships, in no other category except, perhaps, that of heavy cruisers does new or replacement construction pretend to assume Treaty privilege proportions. Thus, no provision has been made to bridge the gap of 73,000 tons of light cruisers, individual units of which rate around 7,500 tons with 6-inch gun armament. In the matter of destroyers, it is frankly admitted that our entire destroyer fleet is rapidly approaching obsolescence. Declaration, too, has been made that the cost of maintaining the older units has assumed such proportions as to make preferable, because cheaper, the building of completely new ships. Progressive corrosion of hull structures calls for extensive repairs to or renewals of bulkheads, frames, and hull plating and, relative to machinery, complete re-tubing of all boilers is imminent. Work of this nature serves but to keep the destroyers in peace-time trim and neither includes nor contemplates installation of modern improvements necessary to bring the vessel up to the standards of modern naval science. All but three of the destroyer fleet will be over-age late in 1933; therefore, unless gradual replacement is undertaken, by 1935 the destroyer category of the United States Fleet will be in efficiency well under the

standard set by other Treaty signatories. During the fiscal year 1932, construction of 5 destroyers was started. On Sept. 27, 1932, construction of 3 more was ordered, to be built in the navy yards at Boston, New York, and Philadelphia. The three destroyers belong to a series appropriated for by the 71st Congress, construction of which was held up by Mr. Hoover's order as a measure of economy. No destroyers have been built since 1920. Balance of the original authorization of twelve by Congress—Aug. 29, 1916—still remains to be allocated to builders.

New Destroyer Characteristics.—The five destroyers for which contracts had already been placed for construction are the *Farragut*, *Dewey*, *Hull*, *MacDonough*, and *Worden*, being built respectively at Quincy, Mass.; Bath, Maine; New York Navy Yard; Boston Navy Yard; and Navy Yard, Puget Sound, Wash. Keel of the *Worden* was laid on December 29th. Five of the eight destroyers will probably be commissioned in 1934. With an over-all length of about 341 feet—some 26 feet more than our present destroyers—and a beam of a few inches over 34 feet, a speed of 37 knots is expected; also a cruising radius of about 6,000 miles. Two stacks instead of four, and a new type cruiser stern—cut away under water for ease in manoeuvring—constitute two noteworthy developments away from existing vessel features. Armament will include five 5-inch 40-calibre guns of a new type; four 50-calibre anti-aircraft machine guns, and eight 21-inch torpedo tubes mounted along the center line on two quadruple mounts, a deviation also from former practice. Notwithstanding the foregoing new construction under way, fears are expressed that when the London Treaty expires December 31st, 1936, our serviceable destroyers will be less than one-fourth of the British and but one-sixth of the Japanese tonnage, unless much more new construction be promptly undertaken and the whole greatly accelerated.

Submarine.—Our submarine fleet, too, is suffering from age disability,

hence a goodly portion of the comment on the destroyer position fittingly applies. Submarines in commission were maintained in generally satisfactory material condition, the service rendered being also satisfactory within the designed capabilities of the individual vessels. Here, too, cost of maintenance is steadily yet rapidly increasing; thus, replacements as well as additions are immediately in order to bring this arm of the Navy up to Treaty strength. Safety alterations have been prosecuted as rapidly as availability of funds and vessels permitted, being practically completed during the year. Research, and experiment with safety devices and engines, were continued and proved of the utmost value. Reliability of main motors showed a marked improvement, only one major casualty being reported. Three submarines were under construction, the *Dolphin*, launched May 8 and near completion at the year end, and the *Cachelot* and *Cuttlefish*, due for completion in September and November, 1933 respectively.

Aircraft Carriers and Tenders.

Construction of the new carrier *Ranger* progressed satisfactorily, the completion date being now set for May 1, 1934. Condition of the carriers *Saratoga* and *Lexington* did not change materially; of interest, however, is the circumstance that the last fleet concentration showed their need for additional distilling plant capacity and that arrangements for fueling small craft at sea were completed on both vessels. During its last overhaul, much and useful work was undertaken and accomplished on the carrier *Langley*, all of which is to be supplemented in the direction of greater efficiency at the next overhaul opportunity. In the aircraft carrier category, new construction additional to the *Ranger*, noted above, is required to insure the tonnage strength permitted under the London Treaty. A growing need developed during the year for vessels of aircraft-tender type, to meet which in part, the collier *Neptune* was selected for conversion. Funds, however, were not available for the work involved. On

the subject of aircraft tenders, the following statement by Admiral Pratt, chief of naval operations, should not be without interest: "While the *Patoka* is not all that might be desired, she does operate satisfactorily as a tender and emergency mooring mast for lighter-than-air craft. With the present very limited capacity of lighter-than-air craft and its problematical value to the fleet, efforts toward securing an additional and more suitable lighter-than-air-craft tender, or excessive expenditures for a new mooring mast in the *Patoka*, do not appear warranted."

Destroyer Tenders, Mine Layers and Sweepers.—No change took place in the status of destroyer tenders. In the category of mine layers and mine sweepers, alterations were completed on seven vessels, converting them into aircraft tenders. Another vessel, the *Lapwing*, was in process of similar conversion. Eight light mine layers were on flotation status for scrapping.

Gunboats.—Another year's normal wear and tear in active service reflected, probably, the material condition of our river gunboats; that of the other gunboats in active service was, however, not good. This is equivalent to pointing out that they should be replaced, because old. Without replacement, the duties imposed upon the Atlantic Fleet and the Special Service Squadron will be difficult of performance fulfillment as is the requirement.

NEW DESIGN

Complete preliminary design plans of a flight-deck cruiser have been prepared to contract plan scale with specifications and detailed preliminary weight estimates. Similar design plans for a 20,000-ton aircraft carrier were nearing completion. Outline sketches of a type of large destroyer presented for consideration by the General Board resulted in the development of two principal schemes,—one contemplating a leader type with quarters for staff officers and, the other, a fighting type in which gun power is accentuated. Several outline sketches—some in considerable detail—were prepared, illustrating a

IX. DEFENSE AND ARMAMENTS

half dozen or more design conceptions of a new type 2,000-ton gunboat. The 19 all-welded district craft constructed during the year confirmed in every respect the convenience and value of welding as a fabrication medium.

SHIPS IN COMMISSION

On September 15, 448 ships and self-propelled craft were in commission as follows: Combatant ships in full commission or fully manned, 148; combatant ships in reduced commission modernizing, in rotating reserve,

and in reduced commission, 45; miscellaneous ships in commission totaled 255, of which 120 were self-propelled craft assigned to shore activities, 28 employed for the training of reservists or naval militia, and 107 employed on fleet service or special duty. During the fiscal year 1933, ten vessels consisting of three 8-inch gun cruisers, two mine sweepers for duty with air-craft, one rigid airship, and four district craft, will be commissioned, while one submarine, R-12, and one ocean-going tug are under orders for decommissioning.

NAVAL AERONAUTICS

BY REAR ADMIRAL W. A. MOFFETT, U. S. N.

CHIEF, BUREAU OF AERONAUTICS, NAVY DEPARTMENT

ECONOMY MEASURES AND RESULTS

The financial condition of the country during the fiscal year of 1932 made necessary the effecting, by the Bureau of Aeronautics, Navy Department, of every possible economy measure while at the same time endeavoring to keep such measures from seriously affecting the naval aeronautical organization. From the financial viewpoint a total saving of \$3,541,103 was made. This amount represents 11.4 per cent of the amount appropriated by the Congress for the year. This saving was made possible chiefly by the successive reduction in the operating force plan of the Navy, the abnormally low price of gasoline and oil, the reduction in the purchase of spare engines from 100 per cent to 50 per cent, and the reduction in the quantity of structural spares purchased. The savings made by the last two items mentioned were possible only because of the great progress in reliability, performance, and strength which had been made during preceding years.

DECOMMISSIONING OF THE LOS ANGELES

The U. S. S. *Los Angeles*, since the 1933 Appropriation Act carried no funds for her operation and mainten-

ance, was decommissioned on June 30, 1932. This airship, although in operation for eight years carrying out valuable experimental and training work, is still air-worthy and is being preserved in good condition so that it can be recommissioned upon 30 days notice should funds for its operation become available.

AIRCRAFT PERFORMANCE

Akron.—During the eight months' period from October 1931, to June 1932, the *Akron* operated over 800 flight hours and in addition based on mooring masts for over 600 hours. While this operating program was being carried out progress was also made in perfecting the arrangements for handling airplanes on the *Akron*.

Macon.—Work was started on the U. S. S. *Macon* in October 1931, and by June 30, 1932, it was 75 per cent complete. Many refinements and improvements are being incorporated as the result of lessons learned from the *Akron*. It is expected that the *Macon* will be ready for flight during the calendar year 1933.

The work accomplished at the Naval Air Station, Sunnyvale, Calif., will make possible its commissioning before July 1933.

NAVAL AERONAUTICS

SERVICE PLANS

Naval aircraft, heavier-than-air, operated during the year with an organization comprised of 918 service airplanes for the regular Navy and Marine Corps, and 162 for the Naval Reserves. Of the service airplanes 588 were in the active fleet, 79 were assigned to the Marine Corps, 203 were used for training, and 48 for experimental and administrative purposes. As will be seen from these figures, the shore establishment included only airplanes required for the training of pilots of the regular Navy and Marine Corps, and the Naval and Marine Corps Reserves and a small number for experimental and administrative use.

AERONAUTICAL PROGRESS

The heavier-than-air progress for the year is clearly seen in the development and use of faster scouting planes, faster fighting planes, and the use of long-distance patrol planes based on tenders and on the two Fleet Air Bases (Coco Solo, C. Z., and Pearl Harbor, T. H.), and the increased use of catapult-launched planes from cruisers and battleships. In addition, the Bureau let contracts for nine experimental airplanes and for the extensive modification of six experimental planes previously obtained.

AIR SERVICE TESTS

Power Plants.—The severity and scope of the tests applied to aircraft power plants during the year resulted in a further increase of reliability and durability and a saving in cost of maintenance. These successful efforts have raised the acceptance standards of design and materials for future use. As an example, 150 hours endurance testing is now incorporated in naval specifications for engines.

Winter Flying.—In December, 1931, the U. S. S. *Langley* conducted a series of cold weather tests off the New England Coast, using six fighting and six scouting planes. The results of these tests showed clearly the needs for future operations of this nature as well as furthering the development of the equipment necessary. Particularly outstanding was the test-

ing of winter flying suits of lighter weight. As a result, it has been possible to decrease the weight of these suits 50 per cent and to make them much less bulky.

Carrier Landings.—Several features connected with carrier landings which had been successfully tried out on the U. S. S. *Langley*, the Navy's experimental carrier, were incorporated in the carriers *Saratoga* and *Lexington* for further tests in service. These landing facilities are being watched carefully in order that the latest results may be incorporated in the U. S. S. *Ranger* which is to be completed during 1934.

STRUCTURAL DEVELOPMENT

Strength Requirements.—Structural development is of tremendous importance to aviation, yet very often escapes notice because the findings in this field come gradually and only after long and scientific research. The results of the past two years of investigation of strength requirements for airplanes have been incorporated in a series of specifications. Methods for the dynamic testing of landing gears and fuselages were developed, and instruments for measuring air loads and landing loads in both sea and landplanes, are being constructed and will be issued to the service shortly. Under the Arms Limitation Treaties, the United States may build 135,000 tons of aircraft carriers.

Carriers.—The *Saratoga* and *Lexington* utilize a total of 66,000 tons of this allowed quota and provide two landing decks. The U. S. S. *Langley* is classed as an experimental carrier and can be replaced under treaty terms. (Her age and slow speed vitiates her usefulness as an adjunct to the Fleet.) The U. S. S. *Ranger*, now building, will use 13,800 tons which leave 55,200 tons to be built in the carrier category. This will place the United States in the ratio position of Great Britain, 5, United States, 3.9, and Japan, 3, while under the treaty the ratio could stand Great Britain, 5, United States, 5, and Japan 3.

Future Construction.—Future plans have pointed to the necessity of con-

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structing flying deck cruisers and additional aircraft carriers, with their appropriate complements of planes in order to provide the United States with an adequate naval air arm. Only 3 out of the 14 aircraft carrying vessels permitted are built or building, or 21 per cent of our total allowance.

CARRIER TONNAGE UNDER THE TREATY

The placing of landing decks on 25 per cent of the allowed cruiser tonnage would partly remedy the inferiority of the United States in carrier tonnage. This inferiority, however, cannot be overcome during the life of the treaty which expires December 31, 1936. If landing decks were placed on 80,000 tons of cruiser tonnage it would allow the building of eight 10,000-ton flying deck cruisers. A 10,000-ton 6-inch gun cruiser will mount 12 guns and carry 4 airplanes. Therefore, by building 8 flying-deck cruisers instead of 8 ordinary 6-inch gun cruisers, 24 6-inch guns would be lost, but 160 airplanes gained in the Fleet, plus 8 highly mobile landing fields. Recommendations along these lines have been made as an immediate

necessity to a continuing naval aviation program as well as a most essential step toward our national defense. However, in the interests of economy, no new flying deck keels were laid during the past fiscal year.

APPROPRIATION PROBLEMS

It should be noted here that no money has been appropriated for the procurement of the 114 planes authorized for the U. S. S. *Ranger*. This means that the Navy is faced with the very serious and difficult task of providing these planes from those now authorized for the active Navy. This can only be accomplished by eliminating or reducing other very necessary units of the aeronautical organization.

For the fiscal year 1933, a reduction of \$7,084,580 has been made by the Congress in the total funds available under the appropriation "Aviation, Navy," as compared with the amount available for 1932. In the light of this severe reduction it is not expected that any savings will be possible, in fact the most drastic economies in every direction will be necessary in order to avoid serious injury to naval aviation.

NAVAL EDUCATION

BY CARROLL S. ALDEN

PROFESSOR, U. S. NAVAL ACADEMY

GENERAL

In earlier years interest in naval education was fixed on its many separate activities; in the year 1932 the aim has been to perfect it, not only in parts, but as a whole. Plans have been formulated according to which officers will attend, approximately every 10 years of their naval career, a shore school: (1) the Naval Academy; (2) the Naval Academy Postgraduate School, or a technological school or university; (3) the Naval War College,—Junior Course, and (4) the Naval War College,—Senior Course. In addition most of them will take special courses and some will attend special schools.

THE NAVAL ACADEMY

This institution aims to provide a general education. This, with the practical training of the summer cruises and also the training in aviation at the Academy, prepares graduates for duties afloat as watch and division officers. With few exceptions all line officers enter the Service through the Naval Academy. The course of four years covers a general field similar to that of the colleges, and in addition includes professional subjects, of which the fundamental principles must be mastered. In response to a growing feeling that the naval officer, like the engineer, should be more than a technological expert,

NAVAL EDUCATION

a thorough-going study has been made of the entire Naval Academy curriculum, and this has resulted in the several changes. Cultural studies have been increased from 21.6% of the whole to 31.6, this being made possible by a slight decrease in the time allotted to mathematics and sciences and a considerable decrease in that allotted to professional subjects. A new department, Economics and Government, is being organized, and additional courses in history and literature have already been introduced. The number of midshipmen appointees has been decreased (previously four for each Senator and Representative, now three), and the number of graduates to be granted a permanent commission in the Service is to be still further reduced. The result is heightened competition; and added strength for the naval reserve should follow.

THE NAVAL ACADEMY POST-GRADUATE SCHOOL

This aims to prepare officers for specialist duties as heads of departments on board ship, as well as for general executive duties. According to the basic plan of the Navy Department every line officer seven years after graduation should be sent ashore for instruction, the greater number at the Naval Academy Postgraduate School. The present limited facilities, however, present more than about 40% being thus ordered. The course, in considerable part common to all, include such subjects as organization and administration, leadership, navigation, ordnance and gunnery, engineering, electricity, and communications; each officer also majors in one subject, such as navigation, marine engineering, or communications. This occupies the first year. The second year a limited number spend in special study continued at the Postgraduate School, and the third year a still more limited number spend at a technological school or university.

THE NAVAL WAR COLLEGE

The Junior Course, intended for lieutenant commanders and senior lieutenants, aims to give officers a grounding in the minor operations of

war. The Senior Course, for commanders and above, aims to give preparation for handling and maintaining large fleets in extended theaters of war and in fleet engagements. Both courses include studies in tactics, strategy, logistics, and international law.

SPECIAL SCHOOLS

Aviation.—Aviation continues of major importance in naval activities. At present about 16% of the line officers are qualified naval aviators. All midshipmen at the Naval Academy are given general instruction in aviation, including a few hours of actual flight in which they do everything except handling the controls. Two years after graduation, candidates for heavier-than-air training have their elimination flight training, and, if successful, are ordered for instruction to Pensacola. There about 60% qualify and are then designated "naval aviators" and assigned to the fleet. Candidates for lighter-than-air service have their training at Lakehurst.

Submarine Training.—Officers looking to submarine service have their basic training at the Submarine School at New London. Classes of about twenty officers pursue the course three or six months. Further training is then gained as they are assigned to submarines in actual service.

Other Schools.—Other officers undergo instruction at the Torpedo School, Newport; the Optical School, Washington; the Chemical Warfare School, Edgewood Arsenal; Harvard Law School; etc. Officers chosen from the line for the Construction Corps spend three years at the Massachusetts Institute of Technology. The Marine Corps and the Staff Corps provide for their own technical instruction.

EDUCATION OF ENLISTED MEN

In the fiscal year 1932 the percentage of re-enlistment was 90.07%, the highest ever attained. In consequence vacancies were comparatively few, and from the large number of applicants only about one out of 20 was accepted. This rigid selection has afforded opportunity to obtain seamen of unusually high educational

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qualifications. Recruit training at the training stations lasts for twelve weeks; instruction is given in manual of arms, pulling a whale boat, swimming, small arms, and self care. After this, recruits are distributed to ships of the fleet and assigned to groups under the direction of special officers. After four months' total service, the apprentice seaman, if qualified, may be rated seaman second class or fireman third class. Inducements are constantly held forth to enlisted men, urging them to advance in rating, and there are special service schools at the several stations where they may secure elementary instruction for the lowest petty officers' rating, or that necessary for them to qualify as cooks and bakers, aviation pilots, pharmacist's mates, etc. Thousands of enlisted men each year attend these schools and successfully complete the courses given.

DIVISION IX

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

SERVICE SOCIETIES

AMERICAN LEGION, 777 N. Meridian Street, Indianapolis, Ind.
AMERICAN REMOUNT ASSN., 810 18th Street, N. W., Washington, D. C.
AMERICAN SIGNAL CORPS ASSN., 195 Broadway, New York City.
ARMY AND NAVY UNION, U.S.A., 315 Hazen Bldg., Cincinnati, O.
ASSN. OF MILITARY SURGEONS OF THE UNITED STATES, Army Medical Museum, Washington, D. C.
CHEMICAL WELFARE SERVICE, Edgewood Arsenal, Maryland.
MILITARY TRAINING CAMP ASSN., 19 W. 44th Street, New York City.
NATIONAL GUARD ASSN., OF THE UNITED STATES, 32nd Street and Lancaster Ave., Philadelphia, Pa.
NAVY LEAGUE OF THE UNITED STATES, 1749 E. Street N. W., Washington, D. C.
PENNSYLVANIA NATIONAL GUARD, 32nd Street and Lancaster Avenue, Philadelphia, Pa.
QUARTERMASTERS' ASSN. OF THE UNITED STATES, 923 15th Street, N. W., Washington, D. C.
RESERVE OFFICERS ASSN. OF THE UNITED STATES, 1653 Pennsylvania Ave., N. W., Washington, D. C.
SOCIETY OF AMERICAN MILITARY ENGINEERS, 810 Mills Bldg., Washington, D. C.
SOCIETY OF NAVAL ARCHITECTS & MARINE ENGINEERS, 29 W. 39th Street, New York City.

U. S. ARMY ORDNANCE ASSN., 806 Mills Bldg., Washington, D. C.
U. S. CAVALRY ASSN., 1624 H Street N. W., Washington, D. C.
U. S. FIELD ARTILLERY ASSN., 1624 H Street N. W., Washington, D. C.
U. S. INFANTRY ASSN., 1115 17th Street N. W., Washington, D. C.
UNITED STATES NAVAL INSTITUTE, Annapolis, Md.

PATRIOTIC AND HEREDITARY

COLONIAL DAMES OF AMERICA, 421 E. 61st Street, New York City.
DAUGHTERS OF 1812, U. S. NATIONAL SOCIETY, 108 Iona Ave., Narberth, Pa.
DAUGHTERS OF THE AMERICAN REVOLUTION, Memorial Continental Hall, Washington, D. C.
DAUGHTERS OF THE REVOLUTION NATIONAL SOCIETY, 420 Lexington Ave., New York City.
GRAND ARMY OF THE REPUBLIC, Room 3, City Hall, New York City.
MILITARY ORDER OF FOREIGN WARS OF THE U. S., 149 Broadway, New York City.
MILITARY ORDER OF THE LOYAL LEGION, 140 Nassau Street, New York City.
MILITARY ORDER OF THE WORLD WAR, 52 Vanderbilt Ave., New York City.
NATIONAL SECURITY LEAGUE, 45 West 45th Street, New York City.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

NATIONAL SOCIETY OF THE SONS OF THE AMERICAN REVOLUTION, 1227 16th St. N. W., Washington, D. C.	SOCIETY OF MAYFLOWER DESCENDANTS, 120 E. 71st Street, New York City.
NATIONAL SOCIETY OF THE SONS OF THE REVOLUTION, Princeton University, Princeton, N. J.	SOCIETY OF THE CINCINNATI, 136 W. Lanvale Street, Baltimore, Md.
ORDER OF FOUNDERS AND PATRIOTS OF AMERICA, 111 Broadway, New York City.	SONS OF CONFEDERATE VETERANS, Law Bldg., Richmond, Va.
PILGRIM SOCIETY, Pilgrim Hall, Court Street, Plymouth, Mass.	SONS OF VETERANS, Reading, Pa.
SOCIETY OF COLONIAL WARS, 124 E. 58th Street, New York City.	SPANISH-AMERICAN WAR, NAVY AND MILITARY ORDER, 184 State House, Boston, Mass.
	UNITED CONFEDERATE VETERANS, New Orleans, La.

PART FOUR

ECONOMICS AND BUSINESS

DIVISION X

BUSINESS AND FINANCE

ECONOMIC AND BUSINESS CONDITIONS

By S. S. HUEBNER

PROFESSOR, UNIVERSITY OF PENNSYLVANIA

THIRD YEAR OF THE BUSINESS DEPRESSION

Like 1931 and 1930, the year 1932 was characterized by a further recession in industry, commerce, employment and commodity and security prices. Although stock and bond prices showed some recovery from the depression low of July (the ninth successive low), practically all the business barometers were, at the close of the year, at the lowest point reached during the three depression years, 1930-32. As described by the Guaranty Trust Company of New York in its December issue of *The Guaranty Survey*: "Measured by almost any of the accepted standards of economic warfare, the year 1932, taken as a whole, was a period of deeper depression than 1931. The production and distribution of commodities were at lower levels; unemployment was greater; the earnings of business enterprises were smaller and losses larger, and commercial failures were more numerous. Prices in general continued to decline, although the downward trend was interrupted by a sharp advance during the third quarter of the year. Distress among the farming population was increased by the further drastic decline in prices of agricultural commodities." The

Guaranty Survey's review points out, however, that "A conspicuous and significant exception to the general trend must be noted in the case of bank failures, which, while very numerous, were less so than in the preceding year. This favorable comparison was made possible by the marked improvement in financial conditions that began in the summer . . . with the result that the total failures for the first eleven months of the year was equivalent to only about two-thirds of that for the similar period a year ago."

BAROMETER OF BUSINESS

Check Transactions.—A review of the various barometers of business clearly indicates an unusually low level of business activity during all of the year. The depression in fact is regarded as measuring fully in severity with the worst stage reached during the memorable business convulsion of 1893-7. Check transactions during the first nine months of 1932 fell below those of the same months in 1931 by 33 per cent, and below those of the corresponding months of 1930 and 1929 by nearly 51 and 62 per cent, respectively.

Securities.—As compared with 1931, the volume of stock market

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transactions during 1932 (first nine months) was also smaller by nearly 20 per cent and, compared with 1930, by nearly 45 per cent. As compared with 1929, the 1932 volume (first nine months) was smaller by the extraordinary amount of nearly 58 per cent. Railroad shares (using the Babson averages) declined to an average high of only 39.27 for September, 1932, as compared with an average high of 68.52 for the same month in 1931, 132.39 for the corresponding month of 1930, and 189.11 for the same month in 1929. In other words, 1932 showed a decline of nearly 43 per cent in this important group of common stocks. Industrial shares likewise reached the low average price level of 65.06 in September, 1932, as contrasted with the average high of 140.13 in September, 1931 (decline of approximately 60 per cent for the year), and with 245.09 for the same month of 1930. For 1929 the September average high stood at 381.17, the average low price for September, 1932, therefore, showing a decline within the three-year period of nearly 83 per cent. The September, 1932, average price for copper shares sank to the extremely low level of 11.3, as compared with 12.7 for the same month of 1931, 28.2 in 1930, and 80.7 in 1929.

Banking Operations.—Banking conditions were also very unsatisfactory, the year being still prolific with bank failures in all sections of the country, although at a rate only about two-thirds as great as was the case during 1931. Banking operations, however, were highly unprofitable for those which maintained their solvency. Money rates for demand loans in New York City reached a monthly average for September as low as 2 per cent, and for time loans as low as $2\frac{1}{8}$ per cent. Frequently, however, daily rates were reported as low as 1 per cent, and in some instances even lower, thus showing the unprofitableness of banking operations.

AGRICULTURAL CONDITIONS

Brief reference may be made to business conditions prevailing in certain of the leading groups of indus-

tries usually not reported in regularly prepared and commonly used index tables. According to *The Guaranty Survey* (Dec. 27 issue): "All other factors in the agricultural situation have been overshadowed this year by the drastic decline in prices of farm products. The general level of farm prices, as measured by the index of the Department of Agriculture, declined from 80 per cent of the five-year pre-war average in 1931 to 52 in June, 1932. It recovered to 59 in August and September but declined to 54 in November, with a probability that the December figure will be even lower. Calculated on the same basis, the price level of the commodities bought by farmers stands at 106, farm taxes about 250, and farm wages at 84." "The principal cause of the decline in prices," as reported by the *Survey*, "is undoubtedly the reduced demand for farm products, particularly the foreign demand, although this influence is aggravated by the tardiness of agricultural production in responding to unfavorable market conditions with a decline in output."

MANUFACTURING AND MINING

In many of the manufacturing and mining industries, unlike agriculture, it was possible in a measure to adjust production facilities to the smaller demands of the times. Yet even here there were price declines during the year, on top of the big recessions reported for last year. Comparing December of 1932 with the same month for 1931, the following prices may be recorded from the many listed in *The Guaranty Survey*: Bituminous coal (Pittsburgh) \$1.20 per ton to \$1.10; copper (New York) 6.37½ cts. per lb. to 4.87½ cts.; hides (Chicago) 7½ cts. per lb. to 6½ cts.; pig iron (Pittsburgh) \$15 a ton to \$14; steel billets (Pittsburgh) \$29 to \$26; lead (New York) 3.75 cts. per lb. to 3 cts.; petroleum (Oklahoma-Kansas) an increase from 79 cts. per bbl. to 94 cts.; rosin (Savannah) \$2.65 per 280 lbs. to \$2.57½; rubber (New York) 4½ cts. per lb. to 3 3/16 cts.; silk (New York) \$2.05 per lb. to \$1.60; wool (Boston) 59 cts. per lb. to 45 cts.;

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and zinc (St. Louis) 3.15 cts. per lb. to 3.12½ cts.

RAILROADS

Of all of the nation's pivotal industries, with the possible exceptions of agriculture and copper production, probably none has suffered greater reverses than the railroads. In addition to greatly reduced traffic, owing to the low ebb of business conditions, the railroads have also been obliged to meet the drastic competition of other transportation agencies, such as automobile, motor truck, airplane and water transportation. As pointed out by *The Guaranty Survey*: "As a result of the decline in business activity due to the depression, combined with the increasing competition of other forms of transportation, the volume of railway traffic declined sharply. Freight loadings for the first eleven months of this year were 25 per cent less than those in the corresponding period of 1931, which, in turn, were 19 per cent below those in the similar period two years ago. Net railway operating income in the first ten months of 1932 was at the annual rate of return of only 1.16 per cent on the property investment of the companies, as against 2.06 per cent a year earlier. In the first eight months of this year, 130 Class I roads out of 162 for which the comparison was made, showed a deficit under their fixed charges of \$255,341,081, whereas the Class I carriers as a whole during that period, after deducting revenues from emergency rates paid over to the Railroad Credit Corporation, showed a deficit under their fixed charges of \$216,900,721." This poor record of earnings had the further result, as was also the case in 1931, of numerous dividend cuts or omissions by our leading railroad systems. In many instances the bonds of important railroads have been selling on a receivership basis, and the reason for the comparatively few receiverships thus far is probably attributable primarily to the operations of the Reconstruction Finance Corporation. Most of the larger systems have deprived their stockholders of all dividend returns, and the rest have substantially cut

the return. For the first nine months of 1932 it would seem that the gross and net earnings per mile totalled only \$8,614 and \$1,776, respectively, as compared with the corresponding figures of \$12,079 and \$2,745 for 1931, \$14,972 and \$3,666 for 1930, and \$17,369 and \$5,070 for the prosperity year of 1929.

BUILDING CONSTRUCTION

In the field of building construction conditions also tended downward to an even more alarming extent than was the case during 1931. Last year (Babson's summary of the F. W. Dodge Corporation reports for 37 eastern states) new building and contract awards amounted to only \$3,092,849,500 as compared with \$4,523,114,600 for 1930, and \$5,754,290,500 for 1929. This year, however, the first nine months of 1932 for which records are available, indicates another drastic decrease. For these nine months the new building contracts awarded totalled only \$1,057,363,700, as compared with \$2,562,707,800 for the corresponding months of 1931 or a decline of nearly 59 per cent, and with \$3,683,399,000 for the same months of 1930, and \$4,601,267,600 for 1929.

DECLINE IN MANUFACTURING OUTPUT

In nearly all other outstanding lines of business as was the case last year, a very substantial decline in operations is apparent. Using the latest available production figure in ten leading industries (Babson's report) the showing is as follows: automobiles and motor trucks (September, 1932) only 74,128 as compared with 140,566 for September, 1931, 220,649 for September, 1930, and 415,912 for September, 1929; ingots (tons, September) only 975,061 as compared with 1,547,602 for the same month in 1931, 3,060,763 for 1930, and 4,510,879 for 1929; bituminous coal (tons, September) 26,314,000 as compared with 31,919,000 for 1931, 38,632,000 for 1930, and 44,515,000 for 1929; lumber (Northern hardwoods bd. ft., July) only 1,683,000 as compared with 6,173,000 for 1931, and 14,363,000 for 1930; cement (bbls., September)

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8,189,000 as compared with 12,092,000 for 1931, 16,124,000 for 1930, and 17,223,000 for 1929. Gasoline (bbls., August) 33,564,000 as compared with 39,283,000 for 1931, 37,844,000 for 1930, and 38,510,000 for 1929; pneumatic tires (number, July) 2,893,000 compared with 3,941,000 for 1931, 3,193,000 for 1930, and 4,856,000 for 1929. In only two of the ten basic industries is an improvement shown in the figures, although slight, namely boots and shoes (pairs, August) 33,68,461 as compared with 31,293,265 for 1931, 28,429,243 for 1930 (August), and 36,444,971 for 1929 (August), and cotton consumption (bales, September) 491,655 as compared with 463,704 for 1931, 352,339 for 1930 (August), and 545,649 for 1929 (August). In practically all of the aforementioned instances, judging from current newspaper accounts and surveys, the course of production has shown little change during the last quarter of this year.

RESUMÉ OF LEADING INDICES OF TRADE

A brief resumé of the leading indices of trade for the major part of 1932, aside from the financial and security market indices already referred to in another section, will serve to show that, with few exceptions, business conditions during the first nine months of 1932 were far below normal.

New capital financing for the first nine months of the year totals only \$255,855,975 as compared with \$1,628,950,773 for the corresponding period of 1931, \$4,474,761,601 for 1930, and \$7,466,588,928 for the same months of 1929.

Foreign Trade.—Exports of merchandise during the first nine months of the present year were only \$1,188,895,000 as compared with \$1,842,511,000 during the same period of 1931 (a decrease of over 35 per cent) and with \$2,952,451,000 for the same period of 1930, and \$3,843,676,000 for the same months of 1929. In the case of imports of merchandise there was also a severe slump, the first nine months total being only \$1,015,301,000 as compared with \$1,618,674,000

for the corresponding period of 1931, (a decrease of over 37 per cent) and with corresponding totals of \$2,401,312,000 for 1930 and \$3,360,017,000 for 1929.

Pig iron production for 1931 (first nine months) total only 6,865,000 tons compared with 15,019,000, 25,702,000 and 32,678,000 tons for the corresponding period of 1931, 1930 and 1929, or decreases respectively of 55, 73 and 79 per cent.

Railway Earnings.—Gross railway earnings also registered a severe decline for the first eight months (latest figures available) i.e. gross earnings were \$8,614 per mile in 1932 as against \$12,119 in 1931, \$14,972 in 1930, and \$17,369 in 1929. For the same eight months net earnings per mile were only \$1,776 for 1932 as contrasted with \$2,748 in 1931, \$3,666 in 1930, and \$5,070 in 1929.

Business Failures.—Reference should also be made to the 1932 record of business failures. As compared with 1931, the first nine months of 1932 showed a substantial increase in the number of bankruptcies, namely 23,798 (Bradstreet and Dun average) as contrasted with 20,311 during the corresponding period in 1931, 18,726 in 1930, and 16,030 in 1929. Liabilities involved in such failures show an enormous increase, namely \$1,478,224,789 as compared with \$940,726,488 for the first nine months of 1931, and corresponding totals for 1930 and 1929 of \$587,945,449 and \$401,049,529.

Dividend Payments.—Previous issues of THE AMERICAN YEAR BOOK called attention to the relatively satisfactory showing with respect to industrial and railroad dividend payments during 1930 and 1931. During 1931 this barometer began to show some decline, although the showing remained extraordinarily good as compared with other business statistics. As was explained last year: "Surplus accounts really constitute owner's insurance, or dividend insurance, and show the wisdom of business managements in holding back from shareholders a substantial portion of current earnings during the surplus years." During 1932, however, owing

to the continued and increasingly drastic nature of the depression, this barometer also began to show up badly. During the first ten months of 1932 (Babson's reports), industrial dividend payments aggregated only \$1,623,400,000 as against \$2,336,900,000 for the same period in 1931 (decline of over 30 per cent), and as compared with \$2,655,600,000 for the corresponding period of 1930. Railroad and traction dividends for the first ten months of 1932 stood at only \$245,100,000 as against \$475,000,000 during the same period of 1931 (decline of over 48 per cent), and as compared with \$530,400,000 for the same period of 1930. As explained last year, it is difficult to tell what the future may hold in store, but it is reasonable to believe that one of the lessons derived by business managers from this severe business depression is likely to be the wisdom of increasing surplus (insurance) reserves even more in the next period of prosperity.

INDEX NUMBERS

Commodity Prices.—Previous discussions (THE AMERICAN YEAR BOOK for 1930 and 1931) emphasize the declining tendency in commodity prices. The year 1932, on the contrary, shows a further decline in the general commodity price level. For 1932 the Bradstreet Index of wholesale prices averaged 7.0956, as compared with 8.7596 for 1931, 10.74 for 1930, and 12.66 for 1929. The present year's Index Number therefore shows a decline of about 19 per cent as compared with the preceding year. It is also interesting to note that the 1932 Index Number of 7.0956 is smaller than the figure reported for 1914, the pre-war year (8.99). A similar tendency is also to be noted with respect to outstanding wholesale commodities. Thus on the basis of Babson's Index Number of wholesale

prices, covering the basic commodities of hides and leather, print cloth, petroleum, iron and steel, rubber, paper, wool, building materials, non-ferrous metals, and bituminous coal, the average price level for 1932 (first nine months) stood at 98 as compared with the corresponding averages of 106 for 1931, 135 for 1930, 150 for 1929, 155 for 1928, 155 for 1927, 174 for 1926. It should be noted that for the first seven months of the year this monthly Index Number ranged between 95 and 99, and that during August and September there was an improvement in the price level to 101 and 102 respectively.

Labor Conditions.—As regards labor conditions 1932 has witnessed a serious retrogression as compared with 1931, as far as the first three-quarters of the year are concerned. For September of 1932 the report of the New York State Department of Labor for manufacturing establishments in New York State places unemployment conditions at only 58 and payroll conditions at only 45, whereas for the corresponding month of 1931 these figures stood respectively at 74 and 67. For 1930 the two figures stood at 85 and 85, and for 1929 at 100 and 106. Averaged for the first nine months, the 1932 employment and payroll figures stood at 59 and 47, as contrasted with 75 and 69 for the corresponding period of 1931, 88 and 89 for 1930, and 98 and 102 for 1929. These figures clearly indicate that unemployment exists on an extraordinary scale, and that wage reductions have also occurred on a large scale. At the beginning of the year many believed that wages and retail prices were the two outstanding important factors which had not yet been adequately liquidated. It would seem that 1932 has certainly experienced a very heavy liquidation in these two directions.

THE SECURITY AND MONEY MARKETS

THE SECURITY AND MONEY MARKETS

BY S. S. HUEBNER

PROFESSOR, UNIVERSITY OF PENNSYLVANIA

GENERAL CONDITIONS IN THE SECURITY MARKET

Liquidation and Recovery.—As compared with 1931 and 1930 nothing of a strikingly favorable nature may be chronicled for 1932. In fact, the extraordinary market value depreciation of 1931 was carried to a new low in July of 1932 (the ninth new low during this depression). The principal feature of the 1932 liquidation was the heavy depreciation in preferred stocks and high-priced common stocks. The downward movement started early in January and continued almost without interruption until the beginning of July. Viewed from the standpoint of percentages of depreciation, as distinguished from an absolute number of dollars, the decline may be regarded as probably the severest single movement during the whole of this depression. Following July there was a spirited reaction upward, throughout practically all sections of the stock market, which reached its culmination late in September. The recovery did not, however, retrieve more than about 85 per cent of the preceding decline. Following September, the market again became reactionary and continued its decline almost uninterruptedly to the end of the year, with average prices at the end of December still above the low of last July but representing a loss of approximately two-thirds of the rise occurring between July and September.

Current Market Factors.—The best that can be said for the 1932 security market is that it is now holding, despite the worst budget of news, and that at no time did it get out of hand, still less degenerate into a panic. Apparently the principal factor was still forced liquidation by financial institutions and individuals hard pressed to protect their less liquid assets, such as real estate and mortgages. Recuperative power of the market seems absent as yet. Yet the

market has for the past three months been extraordinarily dull and steady. It seems to be capable of meeting the large mass of unfavorable news, such as an enormous number of dividend cuts and omissions on the part of large corporations, exceedingly poor financial quarterly reports, an unbalanced Federal budget, a do-nothing attitude on the part of legislative bodies, a very unfavorable foreign situation bordering in some instances on the brink of default of obligations to our Government and our citizens, and a host of other factors furnishing the basis for the dissemination of dismal views. From all appearances, forced liquidation in the security market seems to be substantially over, and there are now many who openly venture the view that the market has clearly reached the stage of accumulation by those who are discerning and capable of protecting their commitments. Funds are piling up so plentifully, and credit has become so cheap, that it is believed by many that a turn for the better is near at hand, and that these funds are bound sooner or later again to find their way into the speculative markets and at approximately the present price level. Speculation got us into our troubles; speculation alone can get us out. It is only a question of time, it is argued, when the forced liquidation will cease and when the nation's speculative mind will again turn optimistic with respect to the economic future.

Stock Value.—As was explained last year, the New York Stock Exchange *Bulletin* (December, 1931 issue) placed the total market value of all listed stocks on the New York Stock Exchange at \$67,478,138,151 in January of 1929. Subsequently this market value was greatly inflated during the violent bull market of the first nine months of the year, culminating in September, 1929. Then followed the six weeks panic which wiped out

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all of that inflation and even something more, bringing the total market value of all New York Stock Exchange listed shares to \$64,707,878,131 in January 1930. By December 1930, this total had fallen by 11½ billions more, namely to \$53,311,859,703, and by January, 1931, to \$49,019,878,459. For December, 1931, the total had declined to \$31,105,267,133, or by nearly 18 billions. As compared with this last total the July total of 1932 stood at only \$16,141,061,000, while the October, 1932 market value again shows a total of \$26,734,828,668. Little change has occurred since that time. However, to show the enormous extent of the downward movement from January to July of 1932 and the subsequent recovery, it should be pointed out that the average monthly stock price index, as published by the New York Stock Exchange *Bulletin*, declined from 29.37 for January, 1932, to the low of 18.89 for July, 1932, and has since recovered to 28.63 for October, 1932.

Bond Value.—All American bonds listed on the New York Stock Exchange showed a market value of \$26,790,000,000 for January 1, 1932; then declined to \$24,504,000,000 for June 1932, and by October 1 the market stood at \$27,792,000,000. The present figure, it should be stated, compares with \$29,640,000,000 for October 1, 1931. All of the aforementioned figures, it is true, pertain only to the issues listed on the New York Stock Exchange, but a similar movement, and to approximately the same extent, occurred on the Curb Exchange as well as other security markets of the country.

VOLUME OF STOCK TRANSACTIONS

Although a new low level of stock prices was reached in July of 1932, thus indicating more or less forced liquidation during the first half of the year, the 1932 volume of stock market transactions was the smallest since 1926. The extreme dullness of the market became increasingly pronounced during the last quarter of the year, and, as already explained, indicates, when viewed in conjunction with a maintained price level under

conditions of unfavorable news, that the present market is probably one of "accumulation" as distinguished from "distribution," and that last July may possibly prove the bottom of this depression. Shares sold on the New York Stock Exchange totalled only 349,782,705 for 1932, according to latest newspaper accounts, as compared with 576,938,298 for 1931, 810,038,161 for 1930, 1,124,991,490 for 1929, 919,621,825 for 1928, 576,563,218 for 1927, 450,845,255 for 1926, and 317,000,000 for 1919 (the highest record of the preceding industrial cycle). But as compared with 1928 and preceding years, it needs to be stated that the number of shares listed for trading purposes has greatly increased through large additional listings as well as numerous "split-ups" of existing issues. On the New York Curb Market 1932 sales of shares has totalled only 57,071,649 as compared with 109,842,434 for 1931 and 222,268,045 for 1930. The 1932 total may also be compared with the sales of 473,770,970 shares during 1929.

STOCK PRICES

Railroad Shares.—As in previous years, the movement in stock prices may be illustrated with Babson's composite price for different groups of selected stocks. Thus using his list of 20 representative railroad stocks, the September 1932 low was 29.71, although the July low stood at only 13.23, as compared with a monthly average high of 40.89 for December 1931, a monthly average high of 109.55 for January 1931, and the yearly high averages of 137.82 and 165.83 for 1930 and 1929. During 1929 these railroad shares reached the highest monthly level during September, namely 189.11. Comparing this 1929 September average with the 1932 low average of 13.23, it appears that these railroad shares declined within the three years under consideration by over 92 per cent. Even on the basis of the September low of 1932 (29.71) the depreciation from the high of September 1929 exceeds 84 per cent.

Industrial Shares.—In industrial stocks the decline in prices during 1932 has also been exceedingly great,

and this is significant because of the unusual decline undergone by this group of shares during 1931. Again taking Babson's composite prices for 30 leading representative industrial stocks for illustrative purposes, representing the leaders in their respective lines, it appears that the September average high price for 1932 stood at only 80.28, as compared with 140.13 for the corresponding month of 1931, 245.09 for 1930, and 381.17 for 1929. This shows a decline of approximately 43 per cent since September, 1931, 67 per cent since September, 1930, and 80 per cent since September, 1929. But it should be noted that the monthly low for this group of industrial shares was carried down to 41.22 for July, 1932, the bottom thus far for the present depression, and representing a decline of nearly 90 per cent from the monthly high of September, 1929. For the first nine months of 1932 the average high is only 72.54 as compared with 164.45 for 1931, 266.17 for 1930, 338.90 for 1929, 219.41 for 1928, 173.87 for 1927, 156.67 for 1926, and 75.09 for the previous depression period of 1921. The first nine months average of 1932 shows a decline of over 56 per cent as compared with the corresponding average of 1931, and of nearly 79 per cent as compared with that of 1929.

Copper Shares.—A similar situation is presented in the copper group of shares. According to Babson's composite price for 20 leading and representative copper stocks, the average price for September, 1932, stood at only 11.3, as compared with 12.7 for the corresponding months of 1931 (decline of 11 per cent), 28.2 for 1930 (decline of 60 per cent), and 80.7 for 1929, (decline of 86 per cent). As was explained last year, probably no important business has suffered so much during the present depression from a lack of demand meeting supply, as well as a decline in the market price of its commodity,—the price falling below 5¢ a pound or the lowest in a generation—than has the copper mining and smelting business. For the first nine months of 1932 the average price for the aforemen-

tioned 20 copper stocks stood at only 7.5 as compared with a similar price for 1931 of 18.3, and with 40.6 for 1930, 80.1 for 1929, 48.3 for 1928, 32.7 for 1927, 29.4 for 1926 and 25.5 for 1921. The first nine months average in 1932 shows a decline of nearly 60 per cent, over the similar period of 1931, nearly 81 per cent as compared with 1930, and nearly 91 per cent when compared with 1929. It should be noted in addition that the June average price for these 20 shares reached the low figure of 4.6, almost the vanishing point. This decline occurred from a January average of 9.1, and since there has been a recovery to a September average of 11.3.

Causes of Depreciation.—To discuss the causes of the aforementioned serious depreciation in all groups of stocks, would only be a repetition of the accounts furnished in the two previous issues of THE AMERICAN YEAR BOOK. The depression has now entered its fourth year, and is universally recognized as a business convulsion of major proportions, probably equal to any of the five major depressions experienced during the last century and a quarter. We are simply paying the price for the speculative excesses committed during the boom years of 1927-29 along practically all economic lines—in real estate, manufacturing, the security markets, wholesaling, retailing, etc. The situation has been rendered more acute by the deplorable economic conditions abroad which are traceable to the destruction and the back-breaking indebtedness occasioned by the World War. The "Sunshine Philosophy" of 1930 and 1931 has substantially disappeared, and we have gravitated step by step from the blue to the dark blue, then to the black, and now we seem to be laboring in the jet black stage. Everywhere it seems to be recognized that the real problem is one of liquidating the debts previously incurred.

Conclusions.—Nine successive new lows have been established in the stock market during the past three years, the last having been reached in July of this year. There is no assurance that a tenth new low might

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not occur, but the speculative mind seems to be turning, as is indicated by the dull but steady market during all of the last quarter of 1932. Liquidation of debts is now proceeding at a rapid pace, and rents, wages and retail prices are being readjusted rapidly to the new order of things. Everywhere also there is a determined feeling that our Government expenditures need liquidation with a view to a reduction in the stifling tax burden. In other words, on every hand the wholesome movement of liquidation is proceeding, and in due course will be substantially completed. Just as was the case during 1931, we have had a continuous emphasis upon a new era philosophy, namely that there can be no improvement in the stock and bond market until there has been an improvement in business. In other words it is believed that business precedes and the security market follows. Speculation during the boom period laid the basis for our present troubles, and speculation alone at the bottom can start us out of these troubles. Business leaders become buyers of their basic commodities on a large scale, on futures, when they believe that the price bottom has been reached. They are speculators by nature, and cannot help it. They obtain their cue from the security market and when that begins to tell the story of the upturn, they become bold to buy their copper, grain, cotton, hides, wool, silk, etc., not for immediate needs, because they are very small as yet, but on futures for future needs a whole year ahead. These future contracts can only be filled by putting men at work. The speculator, in other words, gives the employment, as contrasted with the immediate consumer. He pays the wages, and these in turn give increased buying power, and so in due course the tendency will be started by bull speculators (in all of the markets) towards a better order of things. However, during the past three years the continuous stock and bond market may be regarded as having been the shock absorber for all the non-liquid enterprises of the country. Being the only places which afford a ready market,

our organized security markets are resorted to as the place of sale for the only assets (stocks and bonds) which seem to have a ready market in a period of business deflation. The problem has been further accentuated by the enormous liquidation by foreigners of their ownerships of securities listed in the American markets.

THE BOND MARKET

Price Averages.—Bond sales on the New York Stock Exchange during 1932, according to latest newspaper accounts, totalled \$2,940,598,000 as compared with \$3,088,407,000 for 1931, \$2,779,100,000 for 1930 and \$3,020,300,000 for 1929. The 1932 price level for investment bonds, judging from Babson's composite price of 20 leading representative bonds, showed a very substantial depreciation until the middle of the year. Following July, however, the average price level recovered remarkably, finally reaching a point in excess of the monthly average of December, 1931. The September, 1932 average stood at 78.5, as compared with 89.8 for the corresponding period of 1931, and 98.5 for 1930. For the first nine months of 1932 the average, however, stood at only 73.0 as compared with 95.7 for the corresponding period of 1931, 95.8 for 1930, 92.3 for 1929, 96.7 for 1928, 95.8 for 1927, 92.6 for 1926, 89.8 for 1925 and 73.4 for 1920. It will be noticed that the 1932 average is almost exactly that of 1920, the lowest preceding average since the beginning of this century. The violent movement in bond prices during the year, however, is not revealed by average figures alone. It should be noted that the monthly average price reached the low level of 64.5 for June of 1932, as compared with the June, 1931 average of 95.9, or a maximum decline during a single year of approximately 32 per cent.

Market Values.—Considering the bond market as a whole the outstanding features of the year seem to be the thinness of the market for good bonds at times (declines of 3 to 5 points often occurring between sales) and the heavy decline in the secondary issues of American corporations,

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many of such issues virtually selling on a receivership basis. Although the par value of all of the listed bonds on the New York Stock Exchange increased between Jan. 1 and Dec. 1 of 1931 from \$50,072,000,000 to \$52,547,000,000, the total market value decreased from \$47,384,000,000 to \$39,512,000,000. During 1932 there was a further depreciation in market value to \$36,856,000,000 on June 1, 1932. Subsequently, however, bond prices improved sufficiently to bring the total valuation back to \$40,132,000,000 on Oct. 1, 1932. American listed bonds decreased their par value slightly during the first ten months of the year (from \$33,409,000,000 on Jan. 1 to \$33,113,000,000 on Oct. 1) while the market value of the same bonds increased during the same period from \$26,790,000,000 to \$27,792,000,000, although on June 1 the value had declined temporarily to \$24,504,000,000. For all foreign listed bonds the par value also remained substantially the same during the ten months period, namely \$18,950,000,000 for Jan. 1 as compared with \$18,666,000,000. The total market value of these bonds, however, although suffering a serious shrinkage during 1931, showed a very substantial improvement, namely from \$11,057,000,000 on Jan. 1 to \$12,339,000,000 on Oct. 1, 1932.

THE MONEY MARKET

With respect to both time and call loan rates, the prevailing tendency during 1932 was similar to that described last year for 1931. After the period of unreasoning fear concerning the dependability of banks and the hoarding of money which resulted, funds began to return to depository institutions. At the end of the year there was a plethora of funds. New York time and call loans were often quoted at a fraction of 1 per cent, thus showing the unusual absence of

demand of funds for either commercial or speculative purposes. Starting with a January average of 4 per cent for commercial paper and $2\frac{5}{8}$ per cent for call loans in New York, the average monthly rates gradually worked lower month by month, until for September of 1932 they stood respectively at $2\frac{1}{8}$ and 2 per cent. These rates compared with $4\frac{7}{8}$ and $4\frac{3}{4}$ per cent for January of 1930, and offer a strange contrast to the average monthly rate of $9\frac{1}{8}$ per cent for call loans during the prosperous period of May and June of 1929. During the first nine months of 1932, the average time and call rates in New York stood respectively at 3 and $2\frac{3}{8}$ per cent. For the first nine months of 1932 the average commercial paper rate (Babson's figures) was 3 per cent as compared with $2\frac{1}{4}$ percent for the corresponding months of 1931, $3\frac{3}{4}$ per cent for 1930, and 5 $\frac{7}{8}$ per cent for 1929. For demand loans in New York the first nine months average for 1932 at $2\frac{3}{8}$ per cent, compared with $1\frac{1}{2}$ per cent for the corresponding period of 1931, $3\frac{1}{4}$ per cent for 1930, and $8\frac{1}{4}$ per cent for 1929.

According to the New York Stock Exchange *Bulletin* (October, 1931) the volume of call loans has shown another enormous decline during 1932. On Jan. 1, 1931 these loans stood at only \$1,519,400,054 as compared with \$3,376,420,785 for Jan. 1, 1930 and \$5,722,258,724 on Jan. 1, 1929. During 1931 there was almost a constant monthly decrease, until Jan. 1, 1932, when the total stood at only \$502,329,542, or only about one-third of the total on Jan. 1, 1930. During 1932 there was again an almost constant monthly decline until July, the total decreasing from \$502,000,000 to only \$189,000,000 on July 1. After that date, however, a reasonable increase is noticeable, namely to \$270,000,000 on Oct. 1.

X. BUSINESS AND FINANCE
VOLUME OF BANKING TRANSACTIONS

BY S. S. HUEBNER

PROFESSOR, UNIVERSITY OF PENNSYLVANIA

TOTAL CHECK TRANSACTIONS

Owing to its published frequency, and its national comprehensiveness, this financial barometer is generally regarded as an excellent index of the volume of banking transactions. Previous issues of THE AMERICAN YEAR BOOK explained the enormous decline during 1931 in check transactions as contrasted with 1930 and the equally great decline of that year as contrasted with the previous year of 1929. The year 1932 shows a continuation of the decline to an abnormal extent, the figures for the first nine months of that year being only about two-thirds as large as the 1931 record for the corresponding period.

Using the figures of Babson's reports on fundamental conditions, check transactions for the first nine months of 1932 amounted only to \$268,750,783,000 as compared with \$403,030,906,000 for the corresponding period of 1931, or a decline of over \$134,274,123,000, or 33 per cent. This decline it should be noted, followed a decline of nearly 26 per cent during the first nine months of 1931, as compared with the corresponding period of 1930, and 1930, in turn, showed a decline for the first three-quarters of the year of 25 per cent as compared with the corresponding period of 1929. For the first nine months the 1932 total of \$269,000,000,000 compares with corresponding totals of \$544,000,000,000 for 1930, \$725,000,000,000 for 1929, \$611,000,000,000 for 1928 and \$522,000,000,000 for 1927. Whereas the first nine months' figure of 1931 was lower than that of the corresponding period of the prosperity year of 1929 by nearly \$323,000,000,000, or over 44 per cent, it is startling to know that this year's total is smaller than that of 1929 by \$457,000,000,000, or approximately 63 per cent. If check transactions constitute a fair indication of the nation's trend in volume of business activity, the foregoing figures clearly indicate

the extraordinary depths to which the present depression has gone, and clearly show that it is a major depression comparable in severity to those which culminated in 1893 and 1873. Some allowance must be made for at least three important factors, namely a normal increase in the nation's business development, an increased use of clearing facilities, and the degree of speculative activity upon the nation's leading security and commodity exchanges. With respect to the last factor, it should be stated that there has been a marked dullness for many months of the year, and that this has influenced considerably the total of check transactions during 1932.

**CHECK TRANSACTIONS FOR
NEW YORK CITY**

Attention must be called to the outstanding importance of New York City as the nation's principal center of speculative activity in the security market, as well as in many of the leading organized commodity exchange markets. It is, therefore, important to segregate the volume of check transactions for New York from those that pertain to the rest of the country. For the first nine months of 1932, New York check transactions totalled \$131,229,388,000, or nearly \$6,000,000,000, or about 5 per cent, under the total for the rest of the country. As compared with 1930 New York City check transactions for 1932 (first nine months) decreased by \$172,000,000,000, while the decrease for the rest of the country, inclusive of New York, was only \$104,000,000,000. The disproportionate decrease in New York, as compared with the rest of the country, is attributable largely to the substantial decline of transactions upon the speculative markets, which are cleared in large part through the bank clearing house, although the low ebb of foreign trade and other activities

VOLUME OF BANKING TRANSACTIONS

centering in New York are contributing factors. The shares traded in upon the New York Stock Exchange, for example, were not only much lower in price on the average than was the case during 1931, but aggregated a total of only 350,000,000 shares during the first nine months of the year, as compared with 441,000,000 during the corresponding period of 1931, 634,000,000 during 1930, and 827,000,000 during the same period in 1929. Much the same decline was also experienced on the New York Curb Exchange, the second largest security market in the western hemisphere, as well as on the numerous national commodity markets located in New York, on all of which unusual dullness prevailed.

CHECK TRANSACTIONS OUTSIDE OF NEW YORK CITY

Exclusive of New York City, the 1932 nine months' total of the nation stands at only \$137,527,395,000, as compared with \$193,571,191,000 for the corresponding period of 1931, or a decrease of nearly 29 per cent. This large decline, it should be noted, has followed a corresponding decline of nearly 21 per cent during the previous year. Check transactions, exclusive of New York, represent more truly the production and commercial activities of the nation, since they eliminate the heavy turn-over of speculative transactions. From that

standpoint, the 1932 total indicates clearly the appalling retrogression of general business conditions. This is especially noteworthy when allowance is made for the normal expected growth in the nation's volume of business, as well as the normal increase in the use of checking facilities. Making allowance for these factors, it seems clear that the extent of the business decline during 1932 is really greater than that indicated by the aforementioned yearly decrease of 29 per cent. As compared with the first nine months of 1929 (the boom year of the present cycle) 1932 check transactions outside of New York for the corresponding period show a decline from \$278,000,000,000 to \$137,000,000,000, or nearly 51 per cent.

YEARLY TOTALS

	Exclusive of New York	Inclusive of New York
1932.....	\$137,527,395*	\$268,756,316*
1931.....	250,483,430	403,030,906
1930.....	319,406,769	703,046,254
1929.....	378,568,727	982,716,090
1928.....	348,897,402	850,200,685
1927.....	323,164,467	714,722,361
1926.....	309,363,401	648,418,649
1925.....	292,394,131	605,760,384
1924.....	260,310,695	523,957,472
1923.....	256,556,999	495,097,836
1922.....	222,152,058	463,987,457
1921.....	199,087,442	405,976,001
1920.....	242,069,771	484,500,290
1919.....	210,547,763	457,970,614

*For nine months.

CHECK TRANSACTIONS

(Source of Data—Babson's Reports)
(000 excluded)

	Exclusive of New York		Inclusive of New York	
	1931	1932	1931	1932
January.....	\$25,020,971	\$18,410,316	\$49,577,500	\$36,086,219
February.....	19,640,078	14,988,791	40,587,811	29,369,580
March.....	22,387,877	15,944,602	49,977,313	32,094,266
April.....	22,615,640	16,635,108	49,436,339	32,192,907
May.....	21,725,375	14,568,725	46,797,148	27,481,717
June.....	22,452,397	15,076,825	48,345,193	29,278,898
July.....	21,350,057	14,669,113	42,356,786	27,397,493
August.....	19,063,183	13,579,858	36,563,936	27,038,325
September.....	19,315,613	13,654,057	39,388,880	27,817,378
October.....	20,016,720	.....	40,694,275	.....
November.....	16,968,927	.....	31,432,736	.....
December.....	19,926,592	.....	39,159,796	.....

X. BUSINESS AND FINANCE

CORPORATE FINANCING

(Source of Data—Babson's Reports)

	1931		1932	
	Capital	Refunding	Capital	Refunding
January.....	\$399,848,279	\$180,858,000	\$46,663,750	\$ 1,500,000
February.....	74,250,944	13,975,000	38,862,775	5,688,000
March.....	269,029,300	132,199,200	48,247,150	9,097,320
April.....	267,471,188	189,206,500	15,069,500	33,124,000
May.....	169,360,000	81,230,000	7,230,800	15,000,000
June.....	131,342,790	121,575,000	4,109,500	25,230,500
July.....	115,069,750	40,864,000	62,842,000	49,029,000
August.....	46,197,122	5,800,000	26,280,500	107,114,000
September.....	156,381,400	19,883,000	6,550,000	4,332,000
October.....	17,390,800	500,000	.....	.....
November.....	50,123,250	20,079,000	.....	.....
December.....	66,933,900	19,547,000	.....	.....

December figures (as published by the *Commercial and Financial Chronicle*) give no indication of any improvement during the latter portion of the year. For the week ended Dec. 17, clearings for the various Federal Reserve Districts show the following decreases as compared with the corresponding week of 1931: Boston district (12 cities) —37.4%; New York (12 cities) —39.4%; Philadelphia (10 cities) —9.5%; Cleveland (6 cities) —33.3%; Richmond (6 cities) —22.6%; Atlanta (11 cities)

YEARLY TOTALS

	Capital	Refunding
1932.....	\$ 255,855,975*	\$ 250,114,820*
1931.....	1,763,448,723	825,516,700
1930.....	4,944,403,166	528,875,877
1929.....	8,639,439,660	1,386,921,569
1928.....	6,079,602,416	1,738,274,615
1927.....	5,391,008,544	1,928,187,260
1926.....	4,357,002,720	942,550,970
1925.....	4,100,725,167	637,384,524
1924.....	3,322,295,764	516,275,300
1923.....	2,712,996,155	530,345,942

*For nine months.

SECURITY MARKET PRICES

(Source of Data—Babson's Statistical Service)

	20 Rep. R.R. Stocks		30 Rep. Ind. Stocks		20 Rep. Copper Stocks		20 Rep. Bonds	
	1931 High	1932 High	1931 High	1932 High	1931 Average	1932 Average	1931 Average	1932 Average
January.....	109.55	41.30	173.04	80.88	20.4	9.1	98.0	76.7
February.....	111.58	40.45	194.36	85.98	22.7	8.7	97.8	76.9
March.....	107.13	38.65	187.72	88.78	23.1	8.0	97.8	77.6
April.....	95.82	28.53	172.43	72.18	20.4	6.0	97.0	71.5
May.....	87.01	21.65	154.41	59.01	17.0	5.1	95.8	66.1
June.....	88.31	17.71	156.93	50.88	16.3	4.6	95.9	64.5
July.....	86.13	21.74	155.26	54.26	16.6	5.5	96.2	68.6
August.....	74.19	36.53	145.80	75.61	15.5	9.4	92.9	76.9
September.....	68.52	39.27	140.13	80.28	12.7	11.3	89.8	78.5
October.....	58.18	.....	109.70	.....	11.0	.....	84.0	.....
November.....	55.60	.....	116.79	.....	12.6	.....	81.4	.....
December.....	40.89	.....	91.77	.....	9.3	.....	73.4	.....

—29.9%; Chicago (20 cities)
—44.8%; St. Louis (5 cities)
—30.2%; Minneapolis (7 cities)
—28.2%; Kansas City (10 cities) —35.6%; Dallas (5 cities)
—32.1%; and San Francisco (13 cities) —27.8%. For the 117 cities

represented in the aforementioned publication, inclusive of the city of New York, the decline is 36.6 per cent, as compared with the corresponding week of last year. With New York excluded, the decline is 30.8 per cent. The predominant importance of New

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York should again be noted, that city's total of \$3,093,008,463 for the week comparing with \$1,733,143,681 for all of the balance of the cities.

SHARES TRADED ON THE NEW YORK STOCK EXCHANGE

	1931	1932
January.....	42,423,343	34,362,883
February.....	64,181,836	31,716,267
March.....	65,658,034	33,031,499
April.....	54,346,836	31,470,916
May.....	46,659,525	23,136,913
June.....	58,643,847	23,000,594
July.....	33,545,650	23,057,334
August.....	24,828,500	82,625,795
September.....	51,040,168	67,381,004
October.....	47,896,833	.....
November.....	37,355,208	.....
December.....	50,158,818	.....

YEARLY TOTALS

	Shares of Stock
1919.....	316,787,725
1920.....	226,640,400
1921.....	172,712,716
1922.....	258,652,519
1923.....	236,115,040
1924.....	281,991,597
1925.....	454,404,733
1926.....	450,845,255
1927.....	576,563,218
1928.....	919,661,825
1929.....	1,124,991,490
1930.....	810,038,161
1931.....	576,738,298
1932.....	349,782,705*

*For nine months.

INDEX NUMBERS

(Source of data—Babson's *Statistical Reports*)

	U. S. Dept. of Labor		Babson		U. K. Board of Trade	
	1931	1932	1931	1932	1931	1932
January.....	77.0	67.3	120	99	64.3	63.7
February.....	75.5	66.3	118	99	63.9	63.4
March.....	74.5	66.0	111	97	63.7	63.0
April.....	73.3	65.5	108	98	63.6	61.6
May.....	71.3	64.4	104	97	62.8	60.6
June.....	70.0	63.9	96	95	62.1	.....
July.....	70.0	64.5	97	95	61.5	.....
August.....	70.2	65.2	100	101	59.9	.....
September.....	69.1	.....	102	102	59.7	.....
October.....	68.4	.....	99	.....	62.8	.....
November.....	68.3	.....	102	.....	64.0	.....
December.....	66.3	.....	101	.....	63.7	.....

YEARLY AVERAGE

(Bradstreet)

1902.....	7.88
1903.....	7.94
1904.....	7.92
1905.....	8.09
1906.....	8.41
1907.....	8.90
1908.....	8.00
1909.....	8.51
1910.....	8.98
1911.....	8.7129
1912.....	9.1867
1913.....	9.2115
1914.....	8.9985
1915.....	9.8531

1916.....	11.8236
1917.....	15.6385
1918.....	18.7117
1919.....	18.6642
1920.....	18.8096
1921.....	11.3695
1922.....	12.1186
1923.....	13.4028
1924.....	12.8672
1925.....	13.9445
1926.....	13.0207
1927.....	12.7788
1928.....	13.2824
1929.....	12.6685
1930.....	10.7450
1931.....	8.7596
1932.....	7.0956

X. BUSINESS AND FINANCE

MONEY RATES

(Source of Data—Babson's Statistical Service)

	Average Time and Call Rates in New York City				Average Bank Rates—Eng- land, France and Germany		Gold Movements *Exports Exceed Imports	
	1931		1932		1931	1932	1931	1932
	Dom.	Call	Dom.	Call				
January.....	27 ⁷ / ₈	15 ⁵ / ₈	4	25 ⁵ / ₈	31 ¹ / ₈	51 ⁵ / ₈	34,372,000	*\$72,950,000
February.....	21 ¹ / ₂	11 ¹ / ₂	3 ⁷ / ₈	21 ¹ / ₂	31 ¹ / ₈	5	16,142,000	*90,567,000
March.....	21 ¹ / ₂	1 ³ / ₄	31 ¹ / ₂	21 ¹ / ₂	31 ¹ / ₈	45 ⁵ / ₈	25,645,000	*24,671,000
April.....	21 ¹ / ₂	15 ⁵ / ₈	3 ³ / ₈	21 ¹ / ₂	31 ¹ / ₈	3 ³ / ₄	49,516,000	*30,238,000
May.....	21 ¹ / ₂	11 ¹ / ₂	3	21 ¹ / ₂	31 ¹ / ₈	3 ³ / ₄	49,630,000	*105,514,000
June.....	21 ¹ / ₂	11 ¹ / ₂	23 ³ / ₄	21 ¹ / ₂	31 ¹ / ₈	31 ¹ / ₈	63,847,000	*206,047,000
July.....	2	11 ¹ / ₂	25 ⁵ / ₈	2	48 ³ / ₄	31 ¹ / ₈	19,488,000	*3,437,000
August.....	17 ¹ / ₈	11 ¹ / ₂	21 ¹ / ₈	2	61 ⁷ / ₈	31 ¹ / ₈	57,500,000	6,103,000
September.....	17 ¹ / ₈	11 ¹ / ₂	21 ¹ / ₈	2	51 ¹ / ₂	31 ¹ / ₈	20,561,000	27,897,000
October.....	31 ¹ / ₂	21 ¹ / ₈	.....	.....	51 ¹ / ₂	.....	*337,685,000	.....
November.....	4	21 ¹ / ₈	.....	.....	51 ¹ / ₂	.....	89,436,000	.....
December....	4	28 ³ / ₄	.....	.....	51 ¹ / ₄	.....	56,858,000	.....

FOREIGN TRADE

BY ROLAND L. KRAMER

PROFESSOR, UNIVERSITY OF PENNSYLVANIA

EXPORT AND IMPORT DECLINE

Values.—Foreign trade in the fiscal year ended June 30, 1932, continued the decline that set in at the beginning of the depression. Total exports, both domestic and foreign, were

UNITED STATES EXPORTS, IMPORTS, AND BALANCE OF TRADE, YEARS ENDED JUNE 30 (Millions of Dollars)

Period	Merchandise				Excess of Exports (+) or Imports (—)		
	Exports		General Imports	Per Cent Imports are of Exports	Mer- chandise	Gold	Silver
	Total	United States Mer- chandise					
1910-1914 (average)	\$ 2,166	\$ 2,130	\$ 1,689	\$ 78.0	+ 477	+ 17	+20
1921-22.....	3,771	3,700	2,608	69.2	+1,163	—441	— 8
1922-23.....	3,957	3,887	3,781	95.6	+ 176	—235	— 9
1923-24.....	4,312	4,224	3,554	82.4	+ 758	—407	+19
1924-25.....	4,865	4,778	3,824	78.6	+1,040	+115	+37
1925-26.....	4,753	4,653	4,465	93.9	+ 289	— 97	+29
1926-27.....	4,968	4,867	4,252	85.6	+ 716	—148	+21
1927-28.....	4,877	4,773	4,147	85.0	+ 730	+498	+20
1928-29.....	5,373	5,284	4,292	79.9	+1,082	—155	+17
1929-30.....	4,694	4,618	3,849	82.0	+ 845	—223	+18
1930-31.....	3,084	3,032	2,432	78.9	+ 651	—297	+ 5
1931-32.....	1,949	1,909	1,731	88.8	+ 218	+714	— 5

FOREIGN TRADE

\$1,949,371,225, representing a decline of 36.8 per cent from the \$3,083,429,423 figure of the preceding year; while the value of general imports, \$1,731,379,865 was 28.7 per cent below the \$2,432,074,487 mark of 1930-31. Total merchandise trade thus amounted to approximately \$3,680,750,000, the lowest figure for our foreign trade since 1911. The reduction of 36.8 per cent in exports was greater than the 34 per cent decline registered in the preceding year; while the import recession of 28.7 per cent was less than the 37 per cent decline of last year. It would thus appear that in 1931-32 the shrinkage in export trade not only continues but that it is also increasing while the import trade exhibits a tendency to hold up better. Statistics for the first 10 months of 1932, however, show exactly the same recession from a like period of 1931 as was exhibited in the preceding fiscal year, *viz.*, 34 per cent drop in exports and 37 per cent decline in imports. Lower quantities of merchandise exports and imports as well as continued price recession combined to reduce our 1931-32 trade to the lowest figure in twenty years.

Balance of Trade.—As exports registered a more drastic reduction than was true of imports, the export or "favourable" balance of trade amounted only to \$218,000,000, the smallest export balance since 1922-23. Gold reversed its usual direction and ended the fiscal year with a net export of \$714,000,000. This is the largest net outflow of gold in any one year in the entire history of the United States. For the first half of the fiscal year, *i.e.*, July to December, 1931, exports of gold exceeded imports by only \$90,000,000, but as the year 1932 progressed, gold flowed out in increasing volume, which, for the first six months of the year, resulted in a net export of \$620,000,000. Silver, which has been showing an export balance, rounded out the year with a net import of \$5,400,000.

COMMODITY CHARACTER OF FOREIGN TRADE

The commodity character of the foreign trade in 1931-32, as compared with the trade of the preceding year and with that of the pre-war period 1910-14, is shown in the following table:

FOREIGN TRADE BY ECONOMIC CLASSES, YEARS ENDED JUNE 30
(Millions of Dollars)

Period	Total	Crude Materials	Crude Foodstuffs	Manu- factured Foodstuffs	Semi- Manu- factures	Finished Manu- factures
<i>Exports (Domestic)</i>						
1910-14.....	\$ 2,130	\$ 713	\$ 127	\$ 295	\$ 342	\$ 654
1930-31.....	3,033	725	159	298	405	1,446
1931-32.....	1,909	539	122	195	244	809
<i>Imports (General)</i>						
1910-14.....	1,689	595	203	194	307	389
1930-31.....	2,432	765	349	242	454	623
1931-32.....	1,730	506	260	201	295	468
<i>Exports</i>	%	%	%	%	%	%
1910-14.....	100	33.5	5.9	13.8	16.0	30.8
1930-31.....	100	23.9	5.3	9.8	13.3	47.7
1931-32.....	100	28.3	6.4	10.2	12.7	42.4
<i>Imports</i>						
1910-14.....	100	35.2	12.0	11.5	18.2	23.1
1930-31.....	100	31.5	14.3	9.9	18.7	25.6
1931-32.....	100	29.3	15.0	11.6	17.1	27.0

CLASSIFICATION OF EXPORTS

Finished manufactures remained the leading group of exports, comprising 42.4 per cent of the total. This

proportion, however, continued the decline of the last few years in the relative importance of this class of exports. With the mounting obstacles

X. BUSINESS AND FINANCE

to international trade, it was to have been expected that finished manufactures would suffer more than any other group. Refined mineral oils, second largest exported commodity and the leading finished manufacture exported, registered \$200,132,000, a decline of 40 per cent in value, in spite of a reduction of only 18 per cent in quantity. Machinery, which led all finished manufactures last year, shrank 50 per cent in value to \$193,112,000 and dropped from second to third place in the list of exported commodities. Agricultural machinery exports were drastically reduced 85 per cent from \$86,879,000 last year to \$12,749,000 in 1931-32. Industrial machinery was off 46 per cent to \$91,903,000, while electrical machinery and apparatus declined only 37 per cent to \$62,759,000. Automobiles, parts and accessories continued the drastic shrinkage of last year, declining another 50 per cent to \$99,115,000. In spite of this recession, automobiles maintained their position as the fourth individual commodity exported. Passenger cars suffered a 50 per cent reduction and amounted only to \$31,790,000, while auto trucks were down 57 per cent to \$15,161,000. The fourth item of finished manufactures and ninth in the list of all articles was cotton manufactures. In the face of drastic reductions in all important lines of finished manufactures, cotton manufactures declined only 27 per cent and recorded an export value of \$43,582,000. A number of small items in this group actually showed an increase in value, while quantity but not value improvements were shown in the yardage of gray cloth, bleached cloth and colored cloth exported. Iron and steel advanced manufactures amounted to \$26,908,000, a decline of 50 per cent. Exports of rubber manufactures also shrank 50 per cent and were valued at \$24,825,000. Automobile tires, the largest sub-group, exhibited the same proportional reduction and amounted to \$11,700,000. Photographic and projection goods were down 33 per cent to \$16,457,000 while books and printed matter declined nearly 30 per cent, registering \$15,087,000.

Crude materials continued to be the second group of exports and maintained the growth in relative importance that this group has shown during the past few years. From 23.9 per cent of domestic exports in 1930-31, crude materials improved decisively to 28.3 per cent last year. This relative improvement was due principally to the better maintenance of the raw cotton trade in comparison with the drastic reductions in other leading items. Unmanufactured cotton retained its position as the leading individual commodity exported and was valued at \$339,286,000. This figure represents a decline in value of 20 per cent from the preceding year. Had it not been for an increase of 30 per cent in the quantity of cotton exported, the continued sharp decline in the price of cotton would have more seriously affected the export value. The second largest crude material export and ninth in the list of individual commodities was unmanufactured tobacco. This item again suffered less from price shrinkage than was the case with other important commodities. With a reduction of nearly 30 per cent in the quantity of tobacco exported, the value of \$86,282,000 represented a decline of only 40 per cent from the preceding year. Exports of crude petroleum registered a volume increase of 15 per cent and the reported value of \$23,831,000 was but slightly lower than the returns for 1930-31. Coal is another item in which a fair degree of price stability was exhibited. With a decline of 25 per cent in tonnage, the value of coal shipments was down only 30 per cent to \$36,248,000. Relative improvement in the crude materials group was thus accomplished either by quantitative increases or by less drastic price recessions in the leading commodities.

Semi-manufactures, the third group of exports, was again fractionally lower on a proportional basis. The leading item in the group and eighth in the list of individual commodities exported was chemicals. This item was one of the few important commodities which were less drastically affected by the year's sharp recessions.

With a reported value of approximately \$50,000,000 chemicals dropped only about 18 per cent below the preceding year. Industrial chemicals maintained their position particularly well. Iron and steel mill products, last year's leader in the group of semi-manufactures, declined 55 per cent in value to \$41,440,000. Copper, with a quantity recession of 47 per cent was forced by continued price reduction to \$31,480,000 a shrinkage of 62 per cent. In lumber (boards, planks and scantlings) a 25 per cent lower quantity resulted, with reduced prices, in a decline of 40 per cent in value. Recorded exports of lumber amounted to \$28,218,000. Leather was off 40 per cent to \$18,000,000.

Manufactured foodstuffs, with 10.2 per cent of domestic exports, improved slightly in relative importance over the preceding year. Animal fats and oils fell only 10 per cent in quantity but declined so in price as to register a 40 per cent reduction in value to \$42,130,000. Flour was down nearly 30 per cent in volume and 50 per cent in value, registering \$27,560,000. Meat shipments were 27 per cent lower in quantity but 50 per cent lower in value and amounted to \$24,973,000. In the face of these recessions, fodder and feed exports at \$16,321,000 were nearly double the trade of the preceding year.

Crude foodstuffs with 6.4 per cent. of domestic exports as against 5.3 per cent last year continued the increasing relative importance of this group. The leading item in the group and the fifth in importance of individual commodities exported was fruits and nuts which declined 25 per cent to \$92,714,000. This reduction was due largely to lower prices and smaller shipments of apples and canned fruits. Dried and evaporated fruits, with relative price maintenance, also declined but raisins and apricots improved over last year's trade. Wheat, the seventh in importance of individual commodities exported, was again adversely affected by continued price reduction. In spite of an increase of 30 per cent in tonnage to 96,500,000 bushels, wheat exports fell 15 per cent in value to \$56,570,000.

CLASSIFICATION OF IMPORTS

Crude materials.—In the import trade, crude materials maintained the leading position with 29.3 per cent of the total, against 31.5 per cent for the preceding year. This reduction in relative importance has been continuing for several years. Raw silk remained the most important individual import. Continued price reduction brought silk, with a 5 per cent loss in quantity, from \$225,700,000 to \$157,736,000, a decline of 25 per cent. Crude rubber imports increased 5 per cent in tonnage but price recession resulted in a value of \$50,849,000 which was 47 per cent below the preceding year. Hides and skins suffered also from price reduction, the quantity imported being only 4 per cent less but the value of \$37,413,000 was 40 per cent under the figure for 1930-31. Crude petroleum similarly fell slightly in quantity but declined 30 per cent in value to \$38,000,000. Unmanufactured tobacco was also off slightly in volume and shrank 15 per cent in value to \$32,551,000. Oil-seeds, down 25 per cent, were evaluated at \$25,816,000. Unmanufactured wool and mohair declined 30 per cent in tonnage and 50 per cent in value to \$12,706,000. Unmanufactured vegetable fibres, principally sisal, henequen and abaca increased in quantity but registered an import value of \$11,218,000, a drop of 33 per cent. Two minor items in the crude materials group exhibited an improvement in the face of these drastic value reductions and, in some cases, quantity declines as well. Unmanufactured cotton registered a substantial increase over the preceding year, imports being valued at \$6,435,000; while the position of coal, principally anthracite, was slightly improved, imports being recorded as \$6,356,000.

Finished manufactures again improved in relative importance, comprising 27 per cent of total imports. Should the changes of next year equal those of the year under review, finished manufactures will displace crude materials as the leading group of commodities in our import trade. Newsprint, the leader of the group

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and fourth chief individual import, fell 10 per cent in tonnage and approximately 20 per cent in value to \$99,034,000. Advanced petroleum products declined 33 per cent to \$50,000,000. A somewhat surprising feature of the import trade was the maintenance of cotton manufactures at substantially the same figure as in the preceding year, the value being \$35,833,000 in 1931-32. Laces and floor coverings actually improved over last year, while wearing apparel held to practically the same value as in the year before. Art works at \$31,847,000 registered a decline of 45 per cent. Burlaps continued the shrinkage of last year, the quantity imported being 20 per cent less and the \$22,631,000 value 40 per cent lower. Manufactured flax, hemp and ramie held to substantially the same value as in 1930-31, being recorded at \$27,320,000. Imports of woollen manufactures were \$17,390,000, a drop of 20 per cent while silk manufactures were slightly reduced to \$12,871,000. Leather manufactures fell 30 per cent to \$15,605,000.

Semi-manufactures were of somewhat less relative importance, comprising 17.1 per cent of total imports against 18.7 per cent the preceding year. The leading item in the group and the fifth in importance of all commodities imported was paper base stocks, which declined only 20 per cent to a value of \$68,056,000. Chemicals were down one-third to \$62,046,000 while fertilizers, the principal chemical group, fell 40 per cent to \$28,212,000. Industrial chemicals, however, declined only 25 per cent to \$15,193,000. Although but slightly reduced in quantity, imports of copper dropped 30 per cent in value to \$43,894,000. Furs, as in the preceding year, were off another 37 per cent, imports being recorded at \$38,868,000. Expressed vegetable oils and fats declined 45 per cent to \$27,719,000; while tin, with a quantity reduction of 35 per cent, suffered a shrinkage of nearly 50 per cent in value and was recorded at \$23,464,000. Precious stones and imitations were also off 50 per cent to \$17,920,000 while sawmill products declined 35 per cent and were valued at \$16,987,000.

Crude Foodstuffs, with 15 per cent of total imports, continued the increase in relative importance of the last few years. Coffee, the second in importance of individual imports, was slightly below the record volume of last year and, due to price recession, was 22 per cent lower in value, amounting to \$149,120,000. Fruits and nuts were down 20 per cent to \$51,316,000, bananas alone declining 15 per cent to \$26,800,000. Imports of cocoa were 5 per cent greater in quantity but were 30 per cent less in value, amounting to \$19,847,000.

Manufactured foodstuffs improved in relative position from 9.9 per cent to 11.6 per cent of total imports. This improvement was due to the comparative stability of cane sugar which comprises over one-half of this group. Approximately the same quantity of cane sugar was purchased as in the preceding year and, with the value exhibiting a decline of only about 5 per cent, cane sugar imports amounted to \$107,000,000. Vegetables and preparations, at \$18,846,000, were off 35 per cent; while fish, which includes some manufactured items, declined 10 per cent in volume and 20 per cent in value to \$25,796,000. Meat products, in spite of a quantitative increase of 7 per cent, fell off one-third in value to \$10,174,000.

FOREIGN MARKETS

Europe.—In spite of a decline of 38 per cent, Europe continued by a wide margin to maintain first place among the continents as a market for United States merchandise, taking 48.4 per cent of total exports. The United Kingdom also retained by a substantial margin the position as leading foreign market, taking nearly 20 per cent of total export shipments. Sales to the United Kingdom were valued at \$377,000,000, a drop of approximately one-third from last year. Germany, with \$140,000,000, a decline of 40 per cent, was the second European market, and the fourth world market. France, fifth leading export market, took \$103,800,000 worth of merchandise, a decline of 45 per cent. Our seventh leading world market was Netherlands whose purchases amounted to \$55,800,-

FOREIGN TRADE

000, a drop of 36 per cent. Exports to Italy, eighth world market, amounted to \$50,750,000, a reduction of 30 per cent below last year. Belgium, ninth leading market, received \$47,500,000 work of United States merchandise, a decline of one third. Exports to Soviet Russia fell more sharply than any other major European market. Dropping from sixth to eleventh place in the list of foreign customers, sales to Russia de-

clined 60 per cent to \$41,700,000. Spanish purchases were valued at \$27,600,000, a reduction of 40 per cent while exports to Sweden were off 45 per cent to \$22,260,000. In contrast to these widespread reductions, two European markets placed orders in this country to a greater value than in 1930-31. Greece, with \$10,500,000 was 15 per cent above last year, while Estonian exports showed an 8 per cent increase, the value being \$414,000.

FOREIGN TRADE OF THE UNITED STATES, BY CONTINENTS

(Millions of Dollars)

Period	Total	Northern North America	Southern North America	South America	Europe	Asia	Oceania	Africa
<i>Exports, Including</i>								
<i>Re-exports</i>								
1910-14 (average)	\$2,166	\$ 320	\$ 181	\$ 121	\$1,350	\$ 121	\$ 48	\$ 25
1921-22.....	3,771	551	345	191	2,068	480	84	52
1922-23.....	3,957	666	380	259	2,035	437	122	59
1923-24.....	4,312	611	432	281	2,202	563	157	65
1924-25.....	4,865	658	485	360	2,660	458	167	77
1925-26.....	4,753	708	459	420	2,334	537	201	94
1926-27.....	4,968	797	417	452	2,394	587	216	106
1927-28.....	4,877	871	395	436	2,322	568	174	111
1928-29.....	5,373	999	419	551	2,397	686	193	129
1929-30.....	4,694	830	412	436	2,173	566	160	116
1930-31.....	3,084	530	264	247	1,523	385	64	71
1931-32.....	1,949	302	141	111	944	365	39	47
<i>General Imports</i>								
1910-14 (average)	1,689	119	229	207	836	259	17	23
1921-22.....	2,608	310	391	289	831	705	31	52
1922-23.....	3,781	414	574	471	1,162	996	72	92
1923-24.....	3,554	420	577	430	1,065	945	47	70
1924-25.....	3,824	411	549	496	1,171	1,048	65	84
1925-26.....	4,465	476	497	555	1,275	1,492	71	99
1926-27.....	4,252	486	518	531	1,257	1,315	59	86
1927-28.....	4,147	492	479	560	1,258	1,215	54	90
1928-29.....	4,292	516	477	612	1,302	1,223	57	104
1929-30.....	3,849	488	393	557	1,188	1,097	40	88
1930-31.....	2,432	334	279	345	719	685	25	46
1931-32.....	1,731	236	211	255	526	463	13	27

Asia.—Asiatic markets exhibited a remarkable improvement in relative position, taking 18.7 per cent of exports as against 12.5 per cent last year. In the face of reductions in excess of 30 per cent in exports to all other continents, sales to Asiatic markets fell only 5 per cent and amounted to \$356,000,000. Three Asiatic countries, including two major areas, increased their purchases from the United States. The leading market in Asia and the third in world

markets, was Japan. Exports to Japan were 8 per cent above those of last year and amounted to \$154,000,000. Chinese sales of \$93,000,000 were also greater than in the preceding year by 16 per cent. China was our sixth foreign market. Philippine exports were down 15 per cent and amounted to \$47,000,000; while Indian purchases fell approximately 25 per cent to \$31,300,000. The third Asiatic market in which sales of United States merchandise exceeded

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last year's figures was Persia, with \$1,250,000, an increase of 10 per cent.

Northern North America declined from second to third in the list of foreign markets, accounting for 15.5 per cent of total exports and sustaining a loss of 40 per cent from the trade of the preceding year. Canada remained the second leading market for United States merchandise, taking nearly 15 per cent of total exports. The \$296,000,000 of sales to Canada were 43 per cent below last year.

Latin America (comprising Southern North America and South America) took 14 per cent of our total sales abroad. Exports to Latin America as a whole were off 50 per cent while shipments to South America alone declined 55 per cent. These recessions were the most drastic sustained by any of the continents. As a consequence, Latin America fell to fourth place in our export trade, having occupied third place in 1930-31 and second place in 1929-30. Argentina continued, by a narrow margin, to be our principal Latin-American market and fell to twelfth position in the order of countries. With sales of \$37,231,000, Argentina trade was 58 per cent below last year. Cuba, with \$36,000,000 was our thirteenth foreign market and Mexico, with \$35,000,000, was fourteenth. These figures represent reductions of 45 per cent in Cuban sales and nearly 60 per cent in Mexican. Exports to Brazil were off only one-quarter, the value being \$27,600,000. Panama was the next Latin-American market of importance with sales of \$19,000,000, a decline of over 20 per cent. The most drastic reduction in trade with any important country was incurred in sales to Chile, which fell 80 per cent to a mere \$8,000,000. Exports to Colombia and to Venezuela exceeded sales to Chile, the values being \$10,500,000 (a drop of 55 per cent) and \$11,800,000 (a decline of 50 per cent), respectively.

Africa and Oceania.—Exports to Africa receded about one-third and comprised 2.4 per cent of total exports. Trade with South Africa, aggregating nearly one-half of African sales, declined 30 per cent to \$22,000,-

000. Exports to Australia and New Zealand were off 40 per cent, the former taking \$26,000,000 worth of products and the latter \$11,500,000.

SOURCES OF IMPORTS

Europe.—Europe continued as the leading continent in the import trade, supplying approximately the same share as in the preceding year, *viz.* 30.4 per cent. The United Kingdom was again our chief European supplier and was third in rank among all countries. Purchases from the United Kingdom declined 34 per cent to \$105,500,000. German imports again ranked fourth at \$102,000,000, a reduction of 30 per cent. France with \$64,000,000 also showed a decrease of 30 per cent and continued as ninth in the countries from which we purchased. Italian imports fell only 8 per cent to \$56,300,000, placing Italy in tenth position among all countries. Purchases of Swedish commodities were off 17 per cent, the value being \$31,450,000; while imports from Netherlands, with a shrinkage of less than 20 per cent, were valued at \$30,000,000. Belgian trade also amounted to \$30,000,000 and represented a decline of 25 per cent. Czechoslovakia and Switzerland, each with \$18,000,000 were approximately 20 per cent less than last year. Three European countries of minor importance showed an increase over 1930-31. These were Finland, with \$9,800,000, Rumania, with \$650,000 and Iceland, with \$389,500.

Latin America supplied 26.9 per cent of total imports, barely ranking second among the continents. Imports from Latin America, as well as from South America alone, were off 25 per cent. Brazil was again our leading Latin-American supplier and fifth in importance among all countries. Imports from Brazil amounted to \$98,400,000, a reduction of 18 per cent. Cuban purchases were also off 18 per cent and were valued at \$79,000,000, placing Cuba in seventh position in the order of countries. Colombia was the eighth leading source with purchases of \$69,000,000, another reduction of 18 per cent. The next important Latin-American supplier and thirteenth among all countries was

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Netherland West Indies with a trade of \$46,500,000 representing a shrinkage of 30 per cent. Mexico, fourteenth leading source, sold \$42,300,000 worth of merchandise, a decline also of 30 per cent. Argentina, with \$28,800,000, was off 20 per cent; Chile, with \$25,000,000, showed a reduction of 42 per cent; and Venezuela, with \$20,800,000, fell 40 per cent below last year. In contrast to these reductions, imports from Santo Domingo, Haiti and British Guiana were greater than in 1930-31. Imports from these three countries were \$5,000,000; \$786,000; and \$747,000 respectively.

Asia fell to third place as a source of imports and supplied 26.7 per cent of total purchases, a mere fraction below Latin America. Japan was again the second leading source of imports and supplied \$177,700,000 worth of merchandise, a reduction of 26 per cent. The Philippines, second Asiatic source, and sixth among all countries, supplied 20 per cent less at a value of \$80,000,000. British Malaya, with \$56,000,000, was off 45 per cent; while purchases from British India, valued at \$47,000,000 were off one-third. Chinese imports declined nearly one-half to \$41,300,000

and Netherland East Indies, with \$29,300,000, showed a reduction of 35 per cent. The only Asiatic country which supplied merchandise to a greater value than in the preceding year was Arabia, with sales amounting to \$144,000.

Canada continued to be the leading source of imports, with 13 per cent of the total as compared with 10.5 per cent in 1930-31 although purchases of Canadian merchandise declined 30 per cent to \$226,100,000.

Africa.—African sales accounted for 1.6 per cent of total imports and represented a reduction of 40 per cent, distributed among a number of areas of minor importance. Purchases of Egyptian products were one-third greater than last year and amounted to \$5,000,000. The Gold Coast was the leading African source of imports with \$5,510,000, a decline of nearly 40 per cent.

Oceania was credited with .8 per cent of total imports. Purchases from this area suffered more than imports from any other continent, declining 46 per cent. Sales of Australian products were valued at \$8,300,000, a shrinkage of 40 per cent, while New Zealand supplied \$3,500,000 worth of merchandise, a loss of nearly 50 per cent.

RAILROAD TRAFFIC AND EARNINGS

By G. LLOYD WILSON

PROFESSOR, UNIVERSITY OF PENNSYLVANIA

RAILROAD MILEAGE

Although many startling and disconcerting changes have taken place in railroad traffic and earnings since 1929, there has been little change in the number of miles of railroad line or railroad trackage in operation. In 1932, approximately 242,178 miles of railroad line were operated as compared to 242,325 miles in 1931. The abandonment of railroad lines due to the exhaustion of the resources or abandonment of industries which the railroads were constructed to serve, the shifting of population, financial

exhaustion, and motor carrier competition has just about off-set new railroad construction. Railway trackage, including all main tracks, yard tracks and sidings, now total approximately 430,000 miles, about the same as 1931, as compared to 429,883 miles in 1930, 429,054 in 1929 and 406,580 miles in 1920.

RAILROAD EQUIPMENT

Passenger Cars.—The number of units of railroad rolling stock equipment has been declining in recent years, and this trend was continued

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in 1932. Although recently built railroad passenger cars are larger than those replaced, the number of cars in service fell to 51,750 in 1932, as compared to 52,130 at the beginning of 1931, and 53,501 in 1920. The peak year for the number of passenger-train cars was 1924 when 55,040 cars were in service.

Freight Cars.—The number of freight carrying cars has also tended to decline in recent years, although the average carrying capacity per car has increased, due to the replacement of smaller by larger cars. These trends have been continued during 1932, although it is significant that the demand for lower carload shipping units due to business depression and motor carrier competition caused several freight car types of smaller carrying capacity to be put in service. The aggregate carrying capacity of freight car equipment declined in 1931 and 1932, due to the decrease in the number of cars. The number of freight carrying cars, and the average and aggregate carrying capacity of this equipment of Class I railroads, for significant recent years is shown below:

Year	Number of Freight Cars	Average Capacity (Tons)	Aggregate Carrying Capacity (Tons)
1920....	2,322,122	42.4	98,342,666
1924....	*2,348,725	44.3	104,149,381
1930....	2,276,867	46.6	*106,179,768
1931....	2,200,000	47.0	103,400,000

* Peak

Locomotives.—The number of locomotives in service on Class I railroads has been declining year by year since 1924 when 65,358 locomotives were in service on the lines of these carriers. The average power of each locomotive has been steadily increasing due to the introduction of larger, faster and more powerful locomotive equipment. The total tractive power of all locomotives also increased steadily until 1926, when the total tractive force aggregated 2,611,237,975 pounds. The number of locomotives in service on Class I railroads, and the average and total tractive power for representative recent years are shown. (See next column.)

Year	Number of Locomotives in Service	Average Traction Power (Pounds)	Aggregate Tractive Power (Pounds)
1920...	64,746	36,365	2,340,761,196
1924...	65,358	39,891	2,593,178,015
1926...	62,761	41,886	2,611,237,975
1929...	57,571	44,801	2,550,812,775
1930...	56,582	45,225	2,526,939,860
1931...	55,400	45,800	2,496,500,000

Car and Locomotive Retirement.—

The reports of the American Railway Association for the last year for which complete figures are available, 1931, show that the railroads are retiring worn-out and obsolete locomotives, freight cars and passenger cars faster than they are installing new and more modern equipment.

Locomotives retired	2,119
Locomotives installed	124
Freight-train cars retired....	78,671
Freight-train cars installed...	12,664
Passenger-train cars retired..	1,724
Passenger-train cars installed	528

Rails.—The trend continues toward the use of heavier rail for railroad construction and particularly for the construction of main running tracks. Older and lighter rails are being replaced gradually but steadily with newer and heavier rails. The latest available survey of Class I carriers places the average weight of rail now in use at 90.78 pounds per yard, distributed as follows:

Weight of Rail Per Yard (Pounds)	Miles of Track
Under 50	659
50 to 59	10,029
60 to 69	23,374
70 to 79	32,481
80 to 89	51,240
90 to 99	65,298
100 to 109	51,942
110 to 119	12,925
120 to 129	2,801
130 to 139	16,485
140 and over	49

RAILROAD FREIGHT TRAFFIC

Decrease in Volume.—The alarming decrease in freight traffic which has characterized the railroad freight business since the summer of 1929 continued throughout 1932. The volume of railroad traffic can and should be measured in several ways: 1. The volume of freight traffic as indicated by the number of revenue tons of

RAILROAD TRAFFIC AND EARNINGS

freight originated; 2. the volume of freight traffic indicated by the number of tons of freight transported; 3. the revenue ton-miles transported, and 4. car loadings.

The revenue tonnage originated on all Class I railroad lines represents the total number of tons of freight handled by these railroads and excludes all duplications in joint traffic handled by several railroads. The Class I railroads for the full year 1931 originated 894,185,637 tons of freight traffic, nearly 260,000,000 tons less than the total of 1,153,196,636 tons originated in 1930, and 445,000,000 tons less than the record year for traffic originated, 1929, when the Class I railroads originated 1,339,091,007 tons of revenue paying freight. The total freight originated by the same carriers in 1932 will probably not exceed 80% of the amount originated in 1931. The railroads of the United States are originating less revenue tonnage now than in 1911, despite the growth of population in the United States and the improvements in railroad facilities and service.

Year	Number of Tons of Revenue Freight Originated
1911 (Pre-war Year).....	901,572,797
1920 (Year of Return to Private Operation).....	1,255,420,991
1931 (Post-war Depression Year).....	940,182,560
1926 (Good Traffic Year).....	1,336,142,323
1929 (Record Year).....	1,339,091,007
1930 (Depression Year).....	1,153,196,636
1931 (Depression Year).....	894,185,637

The tonnage originated is divided into the following groups of commodities: 1. Products of mines, 56%; 2. manufacturers and miscellaneous, 23%; 3. products of agriculture, 11%; 4. forest products, 5%; 5. animals and animal products, 2%, and 6. less than carload traffic, 3%.

Class I Revenue Freight.—The loss of freight traffic is further revealed in the statistics of the total revenue tons of freight transported by Class I carriers. These figures measure not only the traffic originated and transported on each railroad line, but the service rendered in connection with traffic received from connecting railroads. Class I carriers in the full

year 1931 transported 1,605,035,026 revenue tons, as compared with 2,063,077,591 tons in 1930, a loss of approximately 20% and compared with 2,341,601,084 tons in the record year, 1929, a loss of more than 30%. Further reductions were suffered in 1932, bringing the total to 20% less than the 1931 figures. The railroads are transporting less freight traffic now than in 1911, when the total freight traffic transported aggregated 1,624,393,638 tons. The figures for the total revenue traffic transported by Class I railroads for the typical complete years now available are shown in the following table:

Year	Number of Tons of Revenue Freight Traffic Transported
1911.....	1,624,393,638
1920.....	2,259,983,278
1921.....	1,690,762,695
1926.....	2,465,368,606
1929.....	2,451,601,084
1930.....	2,063,077,591
1931.....	1,605,035,026

Revenue Ton-mileage.—A third measure of railroad freight traffic is revenue ton-mileage figures which take into account not only the volume of freight traffic transported but also the distance each ton of freight is moved. The Class I railways in 1931 transported the equivalent of 309,308,266,000 tons of freight one mile, or 309,300,266,000 ton-miles, compared with 383,449,588,491 ton-miles in 1930, and 447,321,561,129 ton-miles in the record-breaking year, 1929. The ton-mileage figures show approximately the same rate of decline for these years as is revealed in the statistics of the tonnage originated and transported, and continued losses are recorded for the year 1932. The data of revenue freight ton-mileage for representative recent years of Class I carriers are shown below:

Year	Revenue Ton-miles of Freight Transportation Service Rendered
1911.....	249,843,166,302
1920.....	410,306,209,802
1921.....	306,840,203,512
1926.....	443,746,487,348
1929.....	447,321,561,129
1930.....	383,308,266,000
1931.....	309,308,266,000

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Car Loadings.—Finally, railroad freight traffic can be measured by the number of cars of revenue freight loaded. The car-loadings for the complete year 1931 amounted to 37,272,371 carloads, a decrease of approximately 8,600,000 carloads or 19 per cent below the 45,877,974 carloads in 1930, and 29 per cent lower than the record year, 1929. Complete data for the year 1932 are not yet available, but for comparative purposes, the data for the portions of the years 1930, 1931 and 1932 up to and including the week ended Dec. 3 may be used:

Year Week ended December 3	Car Loadings	Car Loadings Complete Year
1930	43,107,709	45,877,974
1931	35,012,832	37,272,371
1932	26,255,457	27,500,000 (Estimated)

Ton Miles Per Capita.—The statement made previously that the railroad freight traffic is not keeping pace with the growth of population in the United States is shown in the number of freight ton miles of railroad service per capita of population in the United States. In 1931 the railroads performed 2,493 ton-miles per capita. Figures for other significant years are as follows:

Year	Revenue Ton-miles of Freight Transportation Service per Capita
1911	2,667
1920 (Record Year)	3,851
1926	3,808
1929 (Peak Year for Freight Traffic)	3,681
1930	3,113
1931	2,493

Motor Competition.—The motor trucks have made heavy inroads upon railroad freight traffic of all kinds in recent years, but the effect of motor competition is nowhere better revealed than in the almost unbroken

annual decline in railroad less-than-carload freight traffic service since 1920. This decrease continued in 1932. All that is necessary to show this decline are the figures for significant years:

Year	Railroad Less-than-carload Freight Traffic Originated (Tons)
1911	35,175,164
1920	53,202,296
1923	44,338,556
1929	36,043,271
1930	29,666,721
1931	22,773,354

RAILROAD PASSENGER TRAFFIC

Due to the relatively smaller importance of passenger traffic as compared with freight traffic, the distressing story of steadily shrinking passenger traffic, due to increasing competition of private automobiles and motor buses, may be briefly recounted. In 1931 the Class I railroads transported 596,339,000 revenue paying passengers, fewer than the number transported thirty years ago. Each year since 1920 the number of passengers transported has decreased, with the exception of 1923 when there was a slight increase over 1932. The number of passenger-miles of passenger service rendered in 1931 amounted to 21,898,506,000 passenger miles, a decrease of 53 per cent below the peak-year, 1920. Similar decreases are noted in the railroad passenger service performed per capita, which is measured in the average number of passenger-miles of service used by each person in the United States. In 1932, further losses were suffered in the number of revenue passengers transported, in passenger-mile, and in average passenger service performed per capita. The data upon railroad passenger service for representative years are shown in the figures reproduced below:

Year	Revenue Passengers Transported	Revenue Passenger Miles	Railroad Passenger Service per Capita (Passenger Miles)
1911	938,655,719	32,371,444,793	346
1920	1,234,862,048	46,848,667,987	440
1925	888,267,296	35,950,222,811	313
1929	780,468,302	31,074,134,542	256
1930	703,598,121	26,814,824,535	218
1931	596,339,000	21,898,506,000	177

RAILROAD TRAFFIC AND EARNINGS

RAILROAD FREIGHT RATES AND PASSENGER FARES

The freight rates of American railroads have been decreasing steadily since 1921 due to the action of the carriers in decreasing rates to meet the competition services and rates of other carriers, chiefly the steamship and waterway carriers. In 1920 the general level of railroad freight rates was increased by action of the Interstate Commerce Commission, and then reduced horizontally in 1922. In 1931 the Interstate Commerce Commission granted the railroads an emergency increase to assist them in meeting the financial obligations of their fixed charges, which became effective Jan. 4, 1932, for a period to expire March 31, 1933. The best measure of the level of freight rates and passenger fares is the average revenue per ton-mile, and the average revenue per net-mile, respectively. The figures for representative recent years are shown below. It would be noted that the decline in the average receipts per passenger-mile are due in part to the increasing proportion of passenger traffic which is performed at relatively low average rates.

Year	Average Revenue per Freight Ton-mile (Cents)	Average Revenue per Passenger-mile (Cents)
1920.....	1.052	2.745
1931.....	1.275	3.086
1925.....	1.097	2.938
1930.....	1.063	2.717
1931.....	1.051	2.513

RAILROAD EARNINGS

Gross and net earnings of railroads of the United States dropped severely in 1932, following the decreases in 1930 and 1931, due to the increasing severity of competition of other carriers and the continued depressed state of industry. Pursuing the policy of economy and retrenchment inaugurated in 1930 the railroads continued to reduce the operating expenses, and the unit costs of performing freight and passenger expenses. Despite these economies the decreases in freight and passenger traffic and revenues, and the heavy burden of railroad taxation caused severe declines in net revenues. Railroads borrowed large sums in 1932

from the Reconstruction Finance Corporation and from the Railroad Credit Corporation to meet or to assist in meeting their financial obligations or to obtain needed capital for important projects. The effects of increased competition, diminished traffic, reduced average rates, and fares, business depression, financial panic, and heavy taxation are reflected in the comparative figures reproduced below:

Freight Revenues:

1920.....	\$4,328,297,621
1929.....	4,825,622,121
1930.....	4,083,241,558
1931.....	3,254,809,000

Passenger Revenues:

1920.....	\$1,288,503,573
1929.....	873,564,246
1930.....	729,470,279
1931.....	551,050,000

Gross Operating Revenues:

1920.....	\$6,178,438,459
1929.....	6,279,520,544
1930.....	5,281,196,870
1931.....	4,188,343,237

Operating Expenses:

1920.....	\$5,827,591,146
1929.....	4,506,058,262
1930.....	3,930,928,687
1931.....	3,223,567,417

Freight Unit Expenses, per 100 Revenue Ton-miles:

1920.....	\$107.81
1929.....	77.07
1930 (Latest figure available)...	77.47

Passenger Unit Expenses, per Passenger Train-mile:

	(Cents)
1920.....	40.26
1929.....	30.27
1930.....	29.30

Railroad Net Earnings:

1920 (excluding Federal Control and Guaranty Period)	\$ 17,226,902
1925.....	1,121,076,341
1929.....	1,251,697,938
1930.....	868,878,773
1931.....	525,678,252

Railroad taxes rose steadily between 1920 and 1929, but were reduced somewhat in 1930, 1931 and 1932. The relief from tax burdens was absolute and not relative, because taxes consumed a larger percentage of the gross revenue in 1930 and 1931 than in previous years. Significant data with respect to the taxes paid by Class I carriers, the relationship of taxes to gross operation revenues,

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the amount of dividends paid, the average cash dividend rate, and the earnings of the carriers upon the aggregate property investment for the years 1929, 1930 and 1931 are shown below:

Year	Taxes Paid	Ratio of Taxes to Gross Revenue (Per Cent)	Dividends Paid	Average Cash Dividend (Per Cent)	Return on Investment (Per Cent)
1929.....	\$396,682,634	6.32	\$490,125,673	6.0	4.84
1930.....	348,553,953	6.60	497,024,912	6.0	3.30
1931.....	303,560,479	7.25	328,443,192	4.0	2.00

Return on Investment.—Complete data are not available for the year 1932 but figures for the portion of the year thus far available indicate that the rate of return upon investment will probably be about half of the return for 1931, or a little over 1%. The rate of return for the first ten months of 1932 was at the rate of 1.16%. Surely these figures tell their own story of the desperate need of the railroads of the United States for financial rehabilitation in order to conserve the interests of the railroads, and the savings banks, insurance companies, trustees and other fiscal insti-

tutions and private investors, which have invested in the securities of railroads, as well as to insure adequate transportation service to the public. The Department of Commerce reports that the operating revenues and expenses of the railroads of the United States in 1931 were more nearly comparable with those of 1917 than any other comparable recent year, but the net railway operating income was only a little over half of the operating income in 1917. The income for 1932 is considerably worse, as is shown in the figures for the first ten months of 1931 and 1932 shown below:

	1932 Ten Months	1931 Ten Months
Revenues:		
Freight.....	\$2,060,620,349	\$2,803,558,117
Passenger.....	322,033,469	474,526,490
Mail.....	79,757,394	86,430,434
Express.....	46,052,600	71,326,768
All Other Transportation.....	92,985,024	121,925,390
Incidental.....	55,692,679	77,849,094
Railway Operating Revenue.....	2,662,291,595	3,642,401,711
Expenses:		
Maintenance of Way and Structures....	307,322,652	470,254,468
Maintenance of Equipment.....	522,827,581	704,762,423
Traffic.....	81,813,787	99,156,880
Transportation.....	986,701,041	1,327,747,006
Miscellaneous Operations.....	23,994,355	35,591,961
General.....	132,512,206	154,307,071
Net Revenue from Railway Operations.....	610,778,315	856,810,239
Railway Tax Accruals.....	244,822,377	271,916,675
Uncollectible Railway Revenues.....	780,077	663,934
Railway Operating Income.....	365,175,861	584,229,630
Net Railway Operating Income....	266,295,442	473,539,394
Ratio of Expenses to Revenues (Per Cent)...	77.06	76.48

Gross Revenue Distribution.—The latest available figures show the distribution of railroad gross revenue among the following items: 1. Labor, 46.4%; 2. materials and supplies, 18.5%; 3. locomotive fuel, 5.3%; 4. taxes, 7.3%; 5. all other expenses, 9.9%; 6. net railway operating income, 12.6%.

RAILROAD WAGES AND LABOR

No sketch of railroad traffic and earnings is complete without some reference to the number and compensa-

tion of railroad employees, due to the importance of the item of labor costs in railroad operation, and because of the importance of railroad employment to the general unemployment problem. Railroad wages and employment time have been considerably reduced in 1931 and 1932, due to wage reductions, furlough arrangements, and partial employment. The peak year in railroad employment was 1920, when an average of 2,022,832 persons were employed by Class I carriers, and paid an aggregate amount of

CONTROL OF PRODUCTION

\$3,681,801,193—an average of \$1,820 per annum per employee. In 1929, the railroads employed 1,660,850 persons, and the total pay-roll was \$2,896,566,351—an average of \$1,744 per employee. The lay-off and furloughs in 1930 reduced the number of employees to 1,487,839 persons and the pay-roll to \$2,550,788,519—an average compensation per employee of \$1,714. Further releases from employment and wage reductions brought the total railroad working force to 1,260,758

persons in 1931, and reduced the total pay-roll to \$2,095,005,763,—an average wage of \$1,661. The latest figures with respect to railroad employment in 1932 places the number of employees at 1,919,440, a decrease of over 19 per cent below the figures for the corresponding period of 1931, while the total compensation shows a decrease of over 30 per cent below 1931. A slight improvement in railroad employment is one of the encouraging signs in the late months of 1932.

CONTROL OF PRODUCTION

BY WILLIAM F. NOTZ

DEAN, SCHOOL OF FOREIGN SERVICE, GEORGETOWN UNIVERSITY

GENERAL

Control of production played an increasingly prominent part in economic planning and rationalization during 1932. While the purpose of private parties in endeavoring to restrict output was primarily to stabilize market conditions, particularly prices and profits, the governmental agencies that sought to remedy the evils of overproduction centered their interest on conservation of the national resources of the United States. Much more than formerly have Federal and state authorities, including the President of the United States, members of his Cabinet, governors, legislatures and commissions of various states, and the courts concerned themselves with the problem of curtailment of overproduction. Efforts to amend the anti-trust laws so as to permit certain agreements in restraint of trade received growing attention.

PETROLEUM

Conservation Board Statement.—

The most notable progress in controlling and stabilizing production was accomplished in the petroleum industry. The Federal Oil Conservation Board, of which Secretary of the Interior Wilbur is chairman, stated in a report to President Hoover on December 5: "Imports of oil, during a period of domestic overproduction, were cut

25 per cent at the Board's request. The Board's plan, now being advanced on a nonpartisan basis by the oil-producing states through their Oil State Advisory Committee, calls for an interstate agreement on four essentials: (1) The creation of a joint Federal and state fact finding body to forecast demand, recommend crude-oil production, and allocate it among producing states and imports; (2) a commitment by each producing state to adhere to its quota; (3) federal regulation of imports to keep them within the prescribed quota; (4) formulation by this interstate body of uniform conservation principles for adoption in local legislation centering around unit operation and the preservation of reservoir energy."

Proration in Oklahoma.—In an important decision relating to the oil industry of Oklahoma, the U. S. Supreme Court on May 16 decided that a state has the power and authority to limit the production of oil and gas from the wells of the state to the amount of the reasonable daily market demand and to require ratable production by all taking from a common source of supply. The court also held that the proration scheme of limiting oil production as practiced in Oklahoma under its so-called Curtailment Act, the legality of which had been challenged, and the orders of the

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State Corporation Commission thereunder did not deprive oil well owners and operators of any rights under the Federal Constitution. Following this decision Gov. Murray of Oklahoma expanded his martial law order of August, 1931, and assumed control of oil proration. He announced the organization of a new proration board to function subject to approval by the governor and also ordered that the military zone around several oil wells be continued.

Texas.—Similarly the State Legislature of Texas at a special session on November 12 enacted a new oil conservation law which broadened the power of the Texas Railroad Commission by allowing it to consider "market demand" in fixing field quotas and for well allowables, as well as the "physical waste" to which it had been restricted by a former statute. Under the new law the Commission is also given jurisdiction over natural gas production. The act specifically provides that "production, storage or transportation of crude petroleum, oil or of natural gas in such a manner, in such amount, or under such conditions as to constitute waste is declared to be unlawful and prohibited." In a decision on Dec. 12 the U. S. Supreme Court held that the declaration of martial law by Gov. Sterling of Texas in 1931 and the issuance thereunder of military orders restricting production of oil in the East Texas oil field constituted an invasion of the rights of oil producers under the Federal Constitution and an abuse of executive power.

LUMBER

A special lumber survey committee appointed by Secretary of Commerce Lamont in 1931, as chairman of the U. S. Timber Conservation Board, reported in January, 1932, that the lumber industry of the United States must absorb approximately 4,000,000,000 feet of excess stock during 1932, to reestablish a reasonable balance between stocks and demand. A statement issued May 5 said that production must be limited to less than 50 per cent of that of last year. On November 4 the Conservation Board an-

nounced that stocks had been reduced approximately 3,000,000,000 ft., but that continued low consumption had prevented the restoration of an even balance between supply and demand. The Board recommended further reduction of 3,400,000,000 ft. in lumber stocks, and urged producers to restrict output during the remainder of the year to a minimum which financial and community exigencies in each case would permit, and that banks should refrain from facilitating new production of lumber for which there is no market.

COPPER

On March 10, an agreement was reached in New York City by representatives of the copper industry to curtail the production of copper 20 per cent of the capacity rate of mine operation, with no special operating concessions granted to any interest. This limitation was to be binding upon the producers of copper all over the world. The 20 per cent reduction was expected to reduce output by about 12,500 tons per month. A further conference of the copper producers of the world in November in New York for the purpose of regulating the 1933 production failed to reach an agreement. It was understood, however, that the American producers are to hold production down to the 1932 rate of 20 per cent of capacity.

SUGAR

Cuba during the year restricted her sugar crop and stocks on hand in accordance with the demands of the market. On September 26 President Machado signed a decree extending for six months the enforcement of the 700,000 ton sugar pool agreement, which will have the effect of postponing release of segregated sugar until June 30, 1933. If the price has not reached 1.50 by July 1, 1933, sugar will be sold in six installments a month apart between July and December of that year. The outstanding event in the Cuban sugar situation was the signing by President Machado on November 2, of a decree fixing the size of the 1933 Cuban crop at 2,000,-

CONTROL OF PRODUCTION

000 tons. This was in accordance with the recommendation of the Cuban Sugar Institute and pursuant to the Sugar Stabilization Law of Cuba. Grinding is to start February 1, and is to be completed not later than May 31. The quota for the United States is 1,114,991 tons. For shipment to countries other than the United States 735,000 tons are allowed, while the remainder is for local consumption.

Java.—Java's sugar cane plantings in 1932, from which the 1933 sugar crop is to be manufactured, is 57 per cent less than last year. One hundred and sixty-five sugar mills were operating in Java in 1932 as against 178 in 1931. Sixty-two mills have not planted any cane for the 1933 crop.

COFFEE

The coffee valorization policy applied in Brazil for several years past was continued vigorously during 1932. In order to reduce the large surplus stocks and to stabilize prices the destruction of large quantities of coffee was continued under the direction of Brazil's National Coffee Council. Up to May 28, 1932 the Council had purchased 14,255,000 bags of coffee in accordance with a plan adopted June, 1931 to purchase the retained coffee stored in the interior warehouses of Brazil. The coffee thus purchased by the Council was valued at approximately \$62,900,000 at the rate of exchange at that time. The world's visible supply of coffee on April 1 was 37,159,448 bags against 31,485,351 bags on the same date a year previous. During the first half of 1932 over 7,000,000 bags of coffee averaging 132 pounds per bag had been destroyed through burning or otherwise on orders by the Coffee Council. As many as 60,000 bags were destroyed in one day. It is estimated that a total of 10,000,000 bags of coffee will be destroyed during 1932. The export tax on coffee, which is used in purchasing the surplus stocks and also in servicing the 1930 coffee loan of £20,000,000, was collected in 1932 at the rate of 55 milreis, about \$4.22, per bag. In line with the policy of curtailing production and preventing an increase in surplus stocks President Vargas on

November 23 issued a decree prohibiting the planting of coffee anywhere in Brazil for a period of three years. Replanting on abandoned farms is prohibited also. The revolution in the State of Sao Paulo resulted in a stoppage for two months of shipments of Santos grade coffee to the United States, and a resulting steady advance in prices. When the Federal Farm Board a year ago bartered 25,000,000 bushels of wheat for 1,050,000 bags of Santos coffee, a provision was made in agreement that the Board would not sell any of the coffee prior to September 1, 1932, and that thereafter it would limit sales to 62,500 bags monthly. In order to prevent an acute shortage in this country with further drastic advances in prices, negotiations were carried on between the two parties which led to a modification of the said agreement.

TEA

The tea growers in India, Ceylon, Java and Sumatra, suffering from a large surplus of stocks on hand and consequent low prices, formed committees to limit production. They agreed to the principle of a reduction of 15 per cent of the 1929 output in each country, with the respective governments to regulate supplies, to go into operation in 1933. The proposed reduction of output would mean about 20,000,000 pounds less yearly.

RICE

Rice growers in Arkansas declared a "selling holiday" in October. About 70 per cent of the growers in the Slovaktown and Hagan territories in that State on October 10 joined in a holiday movement to be maintained until a minimum of 50 cents is received for Early Prolific and 65 cents for Blue Rose, and pledged 217,500 bushels to the holiday movement. Members of the Arkansas Rice Growers' Cooperative Association and the American Rice Growers' Association expressed a willingness to participate in the agreement.

COTTON AND TEXTILES

On September 6 the Federal Farm Board announced that of the 650,000

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bales of cotton proposed to be marketed by the Cotton Stabilization Corporation prior to July, 1933, more than 300,000 bales had been sold, and that it would withdraw its remaining stocks from sale until March, 1933. It was also stated that the American Cotton Cooperative Association would maintain its present stocks of the 1930 crop until July, 1933.

At a meeting of the Cotton Textile Institute in New York City October 19, President G. A. Sloan stated that the number of spindles in the United States had dropped from 37,939,772 in 1924 to 31,643,898 in 1932, a difference of 16 per cent. Cooperation on the part of most textile mills in adjusting output to market demand had prevented what would otherwise have become chaotic conditions. On July 10 the American Cotton Manufacturers' Association recommended that textile mills place a ban on night work and curtail production by temporary shutdowns. The Executive Committee of the Cotton Textile Institute on November 15 endorsed the shorter hour week.

WHEAT

The Federal Farm Board announced on September 5 that the unsold remainder of its wheat stock, amounting to less than 3,000,000 bushels, would not be reduced by sales before January, 1933, except such sales as be made for shipment to foreign countries. It also stated that the present amount of futures owned would be held at least until after January 1, 1933, in order to make a better market for producers than would otherwise exist.

INTERNATIONAL NITROGEN CARTEL

On July 20 an international agreement was entered into by representatives of European and Chilean producers of nitrogen. Under the terms

of the pact, production, exports and prices of nitrogen products, including nitrate of soda and sulphate of ammonia, employed in the manufacture of artificial fertilizer, will be controlled. The members of the cartel include producers from Chile, partly American controlled, Great Britain, Germany, Norway, Netherlands, Belgium, Poland, Italy, France, Czechoslovakia, Switzerland and Denmark.

ANTI-TRUST LAWS AND CONSERVATION

Strenuous efforts were made during the year to bring about a modification of the anti-trust laws so as to allow curtailment of production. President Hoover in his message to Congress, December, 1932, referred to his message of December 8, 1931, in which he commented on the necessity of congressional inquiry into the economic action of the anti-trust laws, and stated that "particular attention should be given to the industries founded upon natural resources, especially where destructive competition produces great wastes of these resources and brings great hardship upon operators, employes and the public. In recent years there has been continued demoralization in the bituminous coal, oil and lumber industries."

U. S. Attorney-General Mitchell in his annual report to Congress, December 7 stated that in the field of anti-trust laws "it is evident that overproduction and low prices have increased the pressure from business for legislation allowing combinations and concerted action to limit production and thus increase prices, without gradual readjustments from the natural law of supply and demand. It is also evident that if present restrictions against such combinations are withdrawn, the consuming public will have to be furnished Governmental protection against excessive prices."

FOREIGN TARIFFS AND TRADE CONTROLS

FOREIGN TARIFFS AND TRADE CONTROLS

BY HENRY CHALMERS

CHIEF, DIVISION OF FOREIGN TARIFFS, DEPARTMENT OF COMMERCE

GENERAL

Of a specific and immediate nature, the striking trade-control measures of the past year have been increases in tariffs primarily for revenue or import curtailment rather than for protection, the widespread European recourse to quotas and other methods of import restriction, and the very wide resort in Europe and elsewhere to exchange controls. Of a long-term character, the year's outstanding developments in this field have been: England's abandonment of its traditional position and the adoption of a general tariff; the subsequent Imperial Economic Conference at Ottawa, which resulted in considerable extension of the system of tariff and other trade preferences between the areas constituting the British Empire; and the various efforts or projects for regional tariff arrangements or multilateral agreements, particularly in Europe but also in Latin America.

For relief during the period ahead from the cumulative depressing effect upon international trade of the excessive trade barriers, heavy debt burdens, sharp price declines, many depreciated currencies and disorganized finances, and of the curtailed economic activity and reduced purchasing power everywhere, that have developed during recent years—with each of these factors accentuating the other—the general hope at the opening of 1933 seems largely centered upon the World Economic Conference planned for this spring, and the possible concerted international action that it may stimulate.

CONTINENTAL EUROPE

Horizontal Tariff Increases. —

Among the countries of Continental Europe, selective changes in the duties on particular commodities or groups of commodities have indeed taken place during the past year, with the changes almost always upward, but such measures were not as

frequent as in earlier years nor the significant feature of the year. The principal changes in the tariff rates took the form of horizontal increases in the cost of importing or distributing foreign goods, primarily to help the government's fiscal or budget problem, although sometimes also as an outright means of curtailing imports. The forms such horizontal advances took were various. In connection with the horizontal tariff increases, there might be mentioned the French levying upon imports from selected additional countries, whose currencies had depreciated by varying amounts, a so-called "exchange compensation surtax," usually of 15 per cent *ad valorem*. No other European country took similar general measures against imports from depreciated currency countries; in fact, several governments adopted or threatened counter-measures to the French action.

Quota Imports.—Perhaps most distinctive of the year among the countries of Continental Europe was the adoption of measures other than tariffs for the control of import trade. The system of quantitative limitation of imports by quotas spread rapidly in 1932, both as to the number of countries resorting to it and the range of commodities so controlled. Another form of quantitative limitation of imports employed by a large number of European countries to greater or less extent, strongly reminiscent of the post-war years, was the requirement that import licenses be procured from an official body for each transaction in specified commodities, but without advance announcements as to the total quantity that would be admitted, either as a whole or from individual countries. While varying in the extent of the country's total import trade thus controlled, so general did either the quota or the license systems of trade control become during the year that only three out of 25

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countries on the European continent were found not to have resorted to one or both of these types of import control. The method of allocation of import quotas varied considerably in the different countries. Sometimes they were apportioned in accordance with the volume of goods brought in by the particular importer during earlier years; more often, they were divided up into national quotas, with the total amount of a particular commodity permitted importation during the year or quarter usually declared to be determined by the relative imports from the various countries during earlier unrestricted periods. However, this method of allocation of national quotas in proportion to prior trade does not appear to have been very uniformly carried out.

Foreign Exchange Control.—Another type of foreign trade control prominent in Europe during 1932 arose from the financial difficulties of the governments of many countries, which became prominent in midsummer of 1931 and were aggravated during the latter months of that year by the suspension of the gold standard in England, followed, as that was, by most of the far-flung areas comprising the British Empire, by Scandinavia, many countries of Latin America, and later by Japan. In the effort to prevent depreciation in the exchange value of their currencies, or to check the measure of depreciation, and in the effort to conserve gold reserves or credits accruing from exports, either for the payment of fixed foreign obligations or insuring the means of purchase of indispensable commodities from abroad, all but seven (Belgium, Finland, France, Lithuania, the Netherlands, Poland and Switzerland) of the countries of Continental Europe had, by the end of 1932, adopted some measure of foreign exchange control. These controls of the allotments of foreign exchange for various purposes—whether operated by the central national bank, some other specially-constituted body, or by the voluntary agreements of banks—varied widely in the degree of severity with which ordinary commercial transactions were affected. In a few coun-

tries, the prime effort was to prevent speculation in exchange and the transfer of capital for investment or deposit abroad, and regular foreign trade transactions were afforded the necessary exchange upon documentary proof of the importation, and subject only to the usual import duties. A majority of the European exchange control systems, however, are reported to have operated as material additional restrictions upon importation, often to the point of rendering unimportant the height of the duty or the ability to find a buyer or obtain an import permit.

Clearing Agreements.—Efforts have been made to temper the full severity of the system of exchange controls and import restrictions that have developed during this disturbed period. There has developed, both among the European countries and between them and overseas governments, a considerable number of clearing agreements or compensation arrangements for the direct balancing of credits derived from transactions between the two countries, or the exchange of specified volumes of particular classes of goods, sometimes approaching direct barter. Considering the conditions under which they have been resorted to, these clearing and compensation agreements are declared to afford some immediate relief in allowing a somewhat freer flow of goods or settlement of accounts. However, toward the latter part of 1932, it was reported that many of these arrangements were proving too cumbersome and unsatisfactory, and would not be renewed. The criticism has also been heard that such clearing or compensation agreements are premised upon what some regard as an unsound principle, *i.e.*, expecting that the volume of trade between each set of countries should approximate an annual balance, as against the long-established commercial practice whereby inequalities between the amount any one country annually sells to another and the amount it buys from that country are balanced off, in the aggregate of world commerce, by triangular or polyangular trade movements and settlements.

Bilateral Treaties.—In the matter of bilateral commercial treaties between various pairs of countries, which has traditionally been one of the important means of adjustments of tariffs among the countries of Continental Europe, the year 1932 saw unusual developments. There were few new treaties made with European or overseas countries, and those usually simple exchanges of most-favored-nation assurances. The majority of the large number of treaty negotiations consisted rather of revisions of old agreements, and principally for the purpose not of exchanging new concessions in duties but rather of securing release from the treaty obligation not to increase the duties on specified lists of products. Such releases of old bound rates were not always compensated for by substitute concessions on other products, and the countries usually took advantage of the release from bound rates promptly to increase the duties. So definitely do quotas and exchange controls appear to have been accepted as methods of trade control, at least for the relatively short term of current agreements, that promises with regard to the size of quotas on particular commodities or exchange allocations have been written into various European commercial agreements of the year as offsets to treaty concessions in duties or other matters. Revised agreements between at least three pairs of countries provided for certain reciprocal quota allotments, in the effort to attain a balance or particular ratio in the value of the total annual trade between the two countries.

THE BRITISH EMPIRE

General.—The year 1932 will be remembered for two highly important developments in the British Empire in the field of commercial policy: Abandonment by England of its traditional free-trade or limited-tariff position for the adoption of a general import tariff, levying duties of varying amounts upon the great majority of products entering the country; and the great impetus given to the movement for closer economic integration of the Empire by the preferential

tariff agreements entered into at the Imperial Economic Conference held at Ottawa.

Free Trade Abandonment.—The action of the British Government in joining the protectionist ranks was particularly striking and significant in the light of the fact that Britain had been on almost a free-trade basis, since the notable repeal of the "corn laws" in 1846. During the War and since, various additions to the dutiable list were made, partly for protection, partly for revenue and some for other purposes, but the great bulk of imports and range of commodities continued to enter the British market duty free from all sources until 1932. The present government of England was elected in the fall of 1931 on a mandate to adopt whatever measures appeared necessary—including tariffs—to improve the trade balance and assist in relieving the country's economic depression and financial difficulties. It set at once to work out a permanent program of tariffs and other controls on imports. In the meantime, the British Board of Trade and the Minister of Agriculture were given broad authority to impose high duties where regarded necessary to check abnormally large importations of industrial or secondary agricultural products, respectively. That was soon followed by the imposition, beginning March 1, 1932, of a general tariff of 10 per cent *ad valorem* on all products not already dutiable, excepting certain staple foods and raw materials. By the end of April, the abnormal importations duties, as well as the provisional general 10 per cent duty, were superseded by a more carefully elaborated tariff schedule on manufactured and mainly manufactured goods, ranging from 10 to 33⅓ per cent of value, with 20 per cent as the most common new rate.

Imperial Economic Conference.—This whole system of new duties was not to apply to products coming from the British Colonies, and, temporarily it was also not made operative on such importations from the British Dominions, pending the outcome of the Imperial Economic Conference, which had been adjourned from London in

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1930 to meet at Ottawa in the summer of 1932. Tariffs and trade control measures were the only subjects upon which definite agreements resulted from the Ottawa discussions. Twelve bilateral trade agreements were signed by representatives of the participating British countries on Aug. 20, seven of them between the United Kingdom and each of the other governments (except the Irish Free State). The others were agreements between Dominions, several of which had already worked out similar trade agreements during previous years. Whatever may have been the various objectives set forth or urged in advance for the Ottawa Conference, in the direction of making a start toward an ultimate, all-around relaxation of restrictions on foreign trade, the stabilization of exchange rates within the so-called "sterling area,"* improvement of price levels, etc., the agreements that issued had as their declared purpose primarily to increase the purchases from each other of many commodities now largely obtained by the various British areas from outside the Empire.

Analysis of Agreements.—Since most of these agreements have since been put into effect (if only provisionally), by the appropriate action on the part of the respective governments, sometimes in modified form, a brief general statement of their important content is now possible. In return for new or increased tariff preferences or other import facilities in the different Dominions on various groups of products of the United Kingdom, mostly manufactured goods, the British government undertook to levy duties on foreign (non-Empire) imports of wheat, corn, copper and

linseed, which had hitherto been admitted duty-free from all sources; to increase the existing duties on foreign imports of a wide range of products mostly foodstuff, all of which were to continue free from Empire sources; to control by quotas the importation of meats, and later, possibly also dairy products into the United Kingdom, primarily in the interest of the domestic producers and secondarily to afford Empire producers an increasing share of Britain's import trade; to continue the duty-free admission from the Dominions of certain products from foreign sources made dutiable under the British Import Duties Act of 1932; and not to reduce certain specified margins of preference to Dominion over foreign products. The inter-dominion agreements provide for exchanges of similar increased preferences on groups of products in which the particular contracting areas saw an opportunity for replacing non-British products in the other's markets if aided by increased preferences. In an effort to make the preferential arrangements Empire-wide, the Dominions also undertook to grant preferences on certain articles of particular interest to the non-selfgoverning Colonies and to extend to them most of their existing preferential rates, in return for the establishment of new or enlarged preferences on the part of the colonial areas to products that could be supplied from the United Kingdom or the Dominions. The Ottawa agreements also contained a number of general qualifications or undertakings which may affect the operation of the specific preferences in an important way, and their actual operation or interpretation may materially influence the course of Empire tariffs and trade relations.

Results.—As a combined result of the Ottawa agreements and autonomous action, the beginning of 1933 finds almost all important areas in the British Empire—many of which had hitherto admitted foreign goods at the same rates of duty as Empire products, or had granted preferences to only a very limited extent—within the orbit of the British preferential tariff system, extending to many or

*The suspension of the gold standard by England in September, 1931, with a consequent exchange depreciation of the pound sterling, carried with it the currencies of most of the rest of the Empire—with the notable exception of the Union of South Africa (until late December, 1932) and, in a partial way, that of Canada—as well as a number of non-British countries (Scandinavia, Japan and certain countries of South America), either because the currencies of these areas were tied to sterling, or because of the heavy trade dependence of such countries upon the English or the Empire markets.

most of the products of other Empire areas more favorable conditions of admission than to foreign countries generally. It is significant that the majority of the new or increased margins of trade preference to Empire products in the various British areas have been accomplished through the imposition of additional duties or restrictions on the competitive products from non-Empire sources. Reviewing the situation in perspective, therefore, and considering that the larger part of the imports of the areas comprising the British Empire have hitherto been derived from outside the Empire, the tariffs and other trade control measures of the greater part of the British areas are more restrictive of international trade at the opening of 1933 than they were at the beginning of 1932. A possible important exception is Australia, which removed during the year all of her import prohibitions and many of the duty surtaxes established by the preceding party in power during 1930, although this moderation was somewhat offset by the increase of many general duties, toward the close of the year, as a means of giving greater preferential margins to Empire goods.

Effect on American Trade.—The extent to which the past American trade with the United Kingdom or other British areas in the products affected by the Ottawa agreements is likely to be curtailed by diversion to competitive Empire suppliers is a matter which can be definitely determined only by experience. The measure of new advantage being created in favor of Empire products varies widely in the case of the different commodities, with even more variation in the degree to which the developed British or Empire demand for these different products of American origin can readily or fully be satisfied from Empire sources. Moreover, the course of the import trade of the British areas during the next few years is likely to be influenced by quite a number of factors and still unpredictable developments, aside from the official import preferences in favor of Empire products now being established.

Exchange Control.—While the British areas maintained no license control on the amount of exchange allowed for the purchase of foreign goods, as have so many countries of Continental Europe during the past year, the depreciated currencies on which almost all of the British Empire operated during 1932, reenforced the effect of the various increases in their tariff rates, by operating as an additional barrier to the sale of many classes of products of the United States and other gold-standard countries, particularly in so far as they had to meet the competition of suppliers in other British areas or in outside depreciated-currency countries. Owing to the instability of foreign exchange rates during the year, however, and the tendency of the price level in many depreciated-currency countries to advance—or at least not share in the continued price decline of the gold-standard countries—the advantage of the competitive supplier favored by depreciation of his country's currency does not appear to have been as prompt nor as marked as the measure of depreciation in the exchange value of that currency.

LATIN AMERICA

General.—While the fiscal considerations continued an important motive for foreign trade-control measures in Latin America during 1932, and the majority of these countries either resorted to exchange control or had limited exchange available for foreign purchases, restriction on import trade through exchange control was by no means the prime determinant of what foreign trade was possible to the extent that it was among the countries of Continental Europe. With foreign markets for their staple food and raw material exports continuing weak, and with the market prices for these natural products sharply depressed, reduced purchasing power was probably the most important and inherent limitation upon imports of foreign merchandise. With a few notable exceptions, where exchange control was reported severely enforced, changes in the regular import duties and related measures were the princi-

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pal means of adjusting control of foreign trade in Latin America in 1932.

Tariff Changes.—While the majority of the import duty changes in Latin America were by way of increases, the cases of reductions in existing duties were numerous and often significant. Larger revenues appear to be the primary motive for most of the duty increases ordered, with protection to domestic producers often mentioned, and curtailment of the volume of imports frequently present as a prime or collateral objective. On the other hand, in a surprising number of cases were existing duties lowered; sometimes to reduce the price of staple foodstuffs, but most often to facilitate the importation of equipment and materials for certain industries which it was desired to stimulate. This tendency, observed in past years, appears to have been accelerated during this period of depression, as a means of making unnecessary the continued purchase from abroad of many staple products that it is believed could be locally produced, if only on a small scale. Duty reductions to facilitate such local production appeared among the measures taken by Mexico and certain Central American countries during the year, and were notable in the case of Brazil and also in Uruguay and Chile. Argentina removed the duties on a list of foodstuffs, machinery and other products which had been made dutiable the preceding year.

Limited Trade Restrictions.—The countries of Latin America have been notably free from the quota systems and similar import restrictions, that have been adopted so widely by the European countries during the past year or two. The Chilean government was authorized to establish an import quota system, but has thus far used it only on sugar. The wheat or flour mixing regulations prominent in Europe found their counterpart, in a limited way, in the requirements established by Costa Rica and Cuba during the past year for domestic yucca to be mixed with foreign flour in bakery products. National petroleum monopolies have been established in Chile and Costa Rica, and proposed in Peru and

Panama. The Chilean government has authorized the Commissariat of Prices and Subsistence to take control of the production and trade of the country in prime necessities, including the authority to alter import and export duties. It has also authorized the President to alter duties on products found to be "in a state of overproduction." In connection with proposals for broad governmental authority and trade control, Uruguay is considering a proposal involving government monopolies on the importation of certain staple products.

Trade Agreements.—In fact, 1932 has been characterized in Latin America by measures taken or proposed that are indicative of the tension of the situation under present unstable conditions, and of the readiness of many governments of Latin America to experiment with new methods of regulating their foreign trade, either by autonomous measures or agreements with other countries. The year has been exceptionally active for Latin America in the matter of trade negotiations with each other and with countries of Europe. In contrast to the traditional practice on the part of Latin American countries of maintaining single-column tariffs, applied equally to imports from all countries, and of engaging little in special commercial treaties, an increasing number of these governments are planning differential tariffs, and several have already negotiated agreements establishing two sets of rates on particular classes of goods, which are extended to some countries and not to others. Brazil has negotiated over 30 commercial agreements of the simple most-favored-nation type, and of limited duration, in connection with the proposed introduction of a double tariff. During the last two years Chile has made several such temporary agreements with the United States and certain European countries, under the most-favored-nation provisions of which, the Chilean duty reductions in the treaty with France have been generalized. It is notable, however, that these most-favored-nation treaties are temporary and easily terminated.

PUBLIC REGULATION OF COMMODITY EXCHANGES

Tariff Concessions.—The readiness of a number of the Latin-American Republics to grant special tariff concessions on particular products, in return for corresponding concessions on their own exports, has already been definitely expressed in certain tariff treaties recently negotiated with each other, notably that between Chile and Peru, and that between Argentina and Chile, with negotiations for reciprocal favors between Argentina and Brazil reported to be in prospect. No progress has been reported on the tariff agreements worked on toward the close of last year at the tripartite economic conference between Argentina, Brazil and Uruguay, partly owing to political difficulties during the year. However, these three countries have been conferring, with a view to a common attitude on the

export disposal of their meat products, and discussions of other phases of their trade relations are in prospect. The governments of several South American countries have been considering plans for trade barter agreements, possibly of an exclusive character, and at least one country has made several such agreements. With about a half dozen of these twenty countries already having tariff treaties in operation, with the governments of about an equal number possessing specific authority for the purpose, and others reported negotiating, presumably under the general treaty-making authority, the period ahead is likely to see some very active tariff negotiations and treaty agreements with each other and with overseas countries.

PUBLIC REGULATION OF COMMODITY EXCHANGES

BY ARTHUR RICHMOND MARSH

MEMBER, NEW YORK COTTON EXCHANGE

COMMODITY PRICES AND SPECULATION

Owing to the severity of the business depression in the United States, as everywhere else in the world, throughout 1932 agitation for governmental regulation and control of the great futures markets for grain, cotton and other basic commodities has been very little in evidence. It is true that the distressingly low prices commanded by the principal commodities dealt in on the exchanges, especially commodities produced in the United States, have from time to time caused sharp criticism to be directed against these organizations by spokesmen of the producers on the ground that they were somehow responsible for the price catastrophe, and demands have been made in various quarters that their alleged malign influence should be curbed through additional legislation, National or state, of a most drastic or even destructive kind. These demands, however, have re-

ceived little support from responsible leaders of public opinion, whether within or without legislative and governmental circles, or from competent students of the economic situation in its world-wide aspects. The truth has indeed been clear to all eyes, except those of the wilfully blind, that the world-wide collapse of all commodity prices could not conceivably have been caused by mere speculative operations or manipulations, however aggressively conducted, in the relatively small number of futures markets devoted to particular commodities. This truth has been rendered more convincing, furthermore, by the undeniable fact, the actuality of which is amply confirmed by readily accessible governmental and other data, that a very severe contraction of the volume of trading, especially of speculative trading, upon the grain, cotton and other commodity exchanges has occurred during the past two years. The

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volume of such trading during the last twelvemonth in particular has almost certainly been the smallest experienced in any year since the American Civil War, and this notwithstanding the fact that supplies of virtually all the commodities concerned have been much in excess of all previous records. Hence it has been impossible to argue convincingly that the present financial difficulties of American producers of basic commodities, by reason of the ruinously low prices commanded by these commodities either in the domestic or in the world's markets, are directly attributable to obvious abuses of the system of trading on the exchanges contrived by irresponsible, reckless and selfish speculators to the detriment of the general body of those engaged in the processes of production and distribution.

TRADERS' FUNCTIONS AND AGRICULTURAL DISTRIBUTION

General.—Curiously enough in view of the long-continued denunciations of the maleficent influence of speculative activities in the great commodity futures markets, largely in consequence of which governmental regulation of those markets has been tentatively undertaken in this country, the question is now beginning to be asked in some quarters whether the recent practical desertion of the markets by speculative traders and investors may not indicate an impending breakdown of the entire system of distributing agricultural products of world-wide use, like wheat and cotton, which has developed during the past three-quarters of a century. As is well known, the economic or theoretic basis of this system is the assumption that in futures markets resorted to by all classes of persons concerned with each given commodity in every part of the world the long-run forces of supply and demand—that is, the present and prospective supply of commodity as against the world's consumptive requirements for whatever period is needed for a renewal of the supply—will be brought into balance at a fair price level through

the continuous buying and selling of contracts for the future delivery of the commodity by a great variety of middlemen (merchants, manufacturers, distributors and industrial users of finished products, speculative traders or investors, etc.), who are expert in determining the course of commercial values and whose collective judgment of such values may be relied upon. Among the different categories of middlemen necessary for the proper functioning of the futures markets, however, that of the speculative traders or investors is traditionally the most important of all, since they are looked to as the chief assumers and carriers of the price risk, or providers of price insurance, by the other groups of middlemen.

Cotton.—Thus, in the cotton business, as it is conducted today, the cotton merchant proper, the man who buys actual cotton from the growers and distributes it to manufacturers in all consuming countries, immediately passes on to somebody else the price risk on any cotton he buys, either by contracting to deliver the cotton to some manufacturer at the going price or by selling contracts for future delivery on some domestic or foreign cotton exchange. In similar fashion the great majority of the cotton manufacturers in the United States and Europe (though to a somewhat less extent those in Japan, China and India) make it a rule nowadays to have on hand no stocks of cotton the price risk of which is not protected either by sales of goods or by sales of "hedge" contracts in the futures markets. Even the distributors of goods, large and small, have in recent years resorted to practices and expedients—hand-to-mouth buying, "hedging" with cotton futures, buying "on call" and the like—designed to relieve them of the price risk on the goods they handle, leaving this risk to the largest possible extent upon other shoulders. Hence, apart from such governmental or quasi-governmental agencies as the Federal Farm Board, the United States Department of Agriculture

and the Cotton Cooperative Associations, the function of carrying the price risk in cotton and of maintaining a price level for it which is fair to producers and consumers alike, is for the most part reserved for the speculative traders and investors operating in the futures markets. Obviously, therefore, a severe reduction in the number or in the activities of these speculative traders and investors, such as has undeniably taken place during the depression period, cannot fail to have very serious consequences as regards the remuneration which the cotton growers receive for their production. More than this, the defection of the speculative traders and investors, if it should prove to be permanent, would almost certainly destroy the entire marketing system for cotton, of which they have hitherto been an essential part.

Grain.—With minor differences reflecting differences of commercial practice in the two forms of distribution what has just been described as recently happening in the cotton business in all its ramifications has also been happening in connection with the distribution of wheat, the other grains and their products. Here also the handlers of actual wheat or grain—the millers, the dealers in flour, the large baking companies and other groups of middlemen standing between the wheat growers and the ultimate consumers—have been more and more following the practice of trying to pass the price risk on to somebody else, this somebody being ostensibly the speculative trader or investor, who is expected to buy and carry the future contracts sold as “hedged” in the grain futures markets. Unfortunately for the satisfactory functioning of the system a very sharp contraction has occurred in the number and in the operations of the speculative traders and investors in grain, with a corresponding reduction in the price-carrying ability of the futures markets and a consequent distressing lowering of the price level. Various superficial explanations of this phenomenon have been confidently

advanced, that most in vogue in the grain trade being that the interference of the Government, through the Federal Farm Board and its allied agencies and through ill-advised supervision of the grain futures markets, with the free play of the forces of supply and demand in respect of grain prices and with the free activities of traders in grain has stifled speculative initiative and rendered the grain markets both unattractive and dangerous for the making of speculative ventures after the old-time fashion. It is further argued that the Federal tax now assessed upon futures contracts made upon the exchanges handicaps the rank and file of speculative traders to such an extent that the great majority of them find it impossible to obtain a net profit from their day-to-day operations and consequently do little or nothing at all.

Other Commodities.—As against these contentions, the fact seems clear that the recent extensive diminution of speculative trading and investment is by no means confined to those commodities for which futures markets exist—cotton, the grains, provisions, coffee, sugar, rubber, raw silk, cocoa, hides and some metals—but affects the entire list of commodities entering into world trade. As regards all these commodities speculation has for at least a century past played a most important part in the maintenance of the price fabric, and the uniform depression of the prices of all of them certainly indicates that this support is now in large measure withdrawn. The necessary effect of this change upon the futures markets from the standpoint of their adequacy as instrumentalities of commodity price determination is too evident to require extended discussion.

AGRICULTURAL AND OTHER PRICE DISPARITIES

Further impairment of the traditional economic functioning of the commodity exchanges seems not unlikely to result from the adoption by the Government of this country, following the example of many Euro-

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pean and other Governments, of one or another of the various schemes now finding political and to some extent popular favor, the purpose of which is to rectify the price disparities existing at the present time between agricultural and other forms of production and service. In Europe the correction of this undoubted evil is chiefly sought through the imposition of prohibitive tariffs upon agricultural imports, through governmental determination of quotas of domestic products which manufacturers, millers and distributing merchants must use as against imported products, and through the granting of generous bonuses, derived from taxation of one kind or another, paid by Governments to farmers producing particular products deemed essential from a national point of view. In the United States, owing to the fact that an export surplus of our principal farm products is annually produced, the same end is aimed at through such schemes as the Export Debenture Plan, the Equalization Fee Plan and the Domestic Allotment Plan which are now being strenuously urged upon Congress. The theory behind all these schemes is that in some fashion the non-agricultural community can be compelled to contribute, through domestic price enhancement or its equivalent in some form of bonus, to the restoration of equality of remuneration as between the farmers and the rest of society. Whatever the economic merits of these schemes may be and whatever may be their promise of achieving the desired results—and both are extremely dubious—their adoption could scarcely fail to result in violent price distortions and disparities in the domestic and for-

eign markets for basic commodities and to render virtually impossible the traditional hedging operations in the futures markets for those commodities upon which merchants and manufacturers have hitherto relied to safeguard themselves against price losses in the necessarily protracted processes of distribution and manufacture. Deprived of this business the futures markets would have little real reason for existence.

CONCLUSIONS

So long as uncertainties such as have just been described continue to obscure the outlook for the great commodity exchanges it seems highly improbable that additional governmental regulation of the exchanges will be attempted. At any rate, there is at present no intimation that such regulation has a place in any program for the financial relief of the farmers which bids fair to meet with approval in political or governmental quarters. Hence it seems safe to assume that, at least in this country, the entire question of public control of central commodity markets will remain in abeyance until the period of depression with all its economic problems has passed into history. It is furthermore likely that the far-reaching changes in the entire organization and method of commodity distribution which are now envisaged by many economists as unavoidable will, if realized with the return of world commercial and industrial activity, profoundly affect legislative conceptions of the objects to be aimed at in commodity exchange regulation, thereby rendering obsolete and inapplicable much of what has hitherto been done in this field.

PUBLIC PROTECTION OF INVESTORS

BY JOHN EDWARD DALTON

ASSISTANT PROFESSOR, HARVARD SCHOOL OF BUSINESS ADMINISTRATION

GENERAL

In the field of the public protec-

tion of investors, as in other realms of economic and social life, the year

1932 saw the appearance of many baffling problems as to the proper relationship of government to business and to the public. After twenty years of experience in state "Blue Sky" legislation there are expressions of uncertainty as to the adequacy of such legislation to "protect" the ever-increasing investing public against the abuses arising in the field of finance.

That this uncertainty should be manifested was inevitable. The continuous decline in the stock and bond markets, the Senate Finance Committee's Investigation of Foreign Bonds (Senate Resolution, Dec. 10, 1931), the collapse of Krueger and Toll (International Holding Company, in March), the failure of the Insull Utility Investments, Inc. (Public Utility Holding Company, in April), the receivership of S. W. Straus & Company, Inc. (Real Estate Bonds, in October) is a partial list of the widely heralded events which reflected unsettlement in the financial markets and staggering losses to the American public. It is impossible at this time to appraise the amount of these losses due to fraud, misrepresentation, and deceit as contrasted with the losses from fluctuating economic conditions. It can be stated, however, that the general belief of a stunned public is that abuses have arisen in the investment field which must be eradicated by social action, and 1932 stands as a year in which this temper has shown itself in various places in different forms.

FOREIGN SECURITIES

Position.—The position of foreign securities is illustrative of this tendency. The questions raised in this field are unique in that our public did not invest in these securities before the War. For this reason, and because these securities were originated and distributed by a few well-established investment banking firms centered in New York City, the various states in their Blue Sky Laws have exempted them from the scrutiny of public officials.

Senate Investigation.—Leniency toward foreign issues is under ques-

tion. At the opening of the year, market quotations indicated that enormous losses might be taken by the public. Due to these apparent losses, as well as to the belief by some persons that these bonds were sold often under the implied endorsement of the State Department, the United States Senate ordered a general investigation by the Finance Committee on the subject of foreign issues, both governmental and private. The results of the investigation were "to be the basis of any legislation deemed necessary relating to the said subject matter."

Protective Legislation.—Senator Hiram Johnson, Chairman of the Senate Finance Committee, introduced two bills in the Senate to provide machinery for the control of foreign securities. The first provided that "no person shall, directly or indirectly, make, negotiate or underwrite any loan to or for the use of a foreign government or any other foreign loan without such loans have been approved by the (Foreign Loan) Board." This Board, composed of the Secretaries of State and Commerce and the Chairman of the Federal Reserve Board, in arriving at the "advisability" of a loan was to consider, among other things, the financial condition of the borrower, the security available, the proposed method of financing and the relationships with the United States. The second bill called for full publicity of all foreign loans by requiring the filing of information with the Secretary of Commerce on such matters as the terms of the loan, name of underwriting and distributing groups and profits expected by bankers. No important Federal legislation was enacted in regard to the control of foreign securities. The question has not been solved; it has been sidetracked.

REAL ESTATE SECURITIES

Situation Acute.—During the building boom (1919-29) a new type of security was issued to the American public, the real estate mortgage bond. A report of a Committee of the Investment Bankers' Association

(see I. B. A. *Investment Banking*, Nov. 25, 1931) estimated that \$8,000,000,000 to \$10,000,000,000 of such bonds were issued during this period and \$6,000,000,000 remained outstanding in 1931 of which approximately 60% was "more or less in distress." The situation in the field became increasingly acute during 1932.

State Investigations.—The great bulk of these bonds was sold "by investment banking houses or banks having real estate loan departments." Because of the nature of the security and the financial strength of the houses of issue, these bonds were not generally scrutinized during the boom period by the state Security Commissions. In 1932, however, some states have opened general investigations of the real estate bond field, giving particular attention to the possibility of defending the public's interest as it is affected by Reorganization Committees of properties in default. In New York, for example, the State Attorney General stated that "the situation revealed, in my investigation of companies who sold real estate bonds in this city and State of New York, is incredibly distressing and this office serves notice that it intends to exert its power and influence to protect the interests of the bondholders." He added: "By virtue of the powers vested in me under the provisions of the Martin Act, I reserve unequivocally to myself the right to inquire into every plan of reorganization which is contemplated or proposed. . . . It is my firm belief that any reorganization must be entirely and solely for the benefits of the bondholders."

Straus Receivership.—On October 7, 1932, the largest originator and distributor of real estate bonds, S. W. Straus & Co., Inc., was ordered into a Martin Act receivership by Supreme Court Justice Norton, who, at the same time, granted a temporary injunction restraining additional sales of securities. The opinion of the court stated that the "plain rules of common honesty" had been violated by the company in selling its "general mortgage

bonds." The Straus company appealed the case and on Oct. 21, *The New York Times* reported that the receivership "was lifted . . . on condition that the company refrain from transferring any of its assets or distributing any of its property."

Regulation.—The above experience in New York is chronicled to indicate that, in the main, the year 1932 found a general admittance that reckless and loose methods of financing real estate construction loans had prevailed without effective regulation by state commissions. "Perhaps the most serious abuses that crept into the investment banking field were those that arose in connection with the financing of the real estate boom . . ." said Francis H. Sisson, president of the American Bankers Association, at the convention in Los Angeles in October, 1932. "The blame for this situation rests with state laws and public supervisory agencies, not with legitimate members of the banking fraternity." Recognizing this, various states have made an attempt to trust their strength to the investor's benefit after default and during reorganization. The year has seen no public real estate financing and consequently there has been no necessity for the formulation of a policy of public protection in this sphere of finance. That this will be necessary is certain in that an upturn in the building cycle will require extended public financing in this field.

PUBLIC UTILITY ISSUES

Insull Collapse.—In April, 1932, the Insull Utility Investments, Inc., the parent holding company of a widespread public utility system, was thrown into receivership. The collapse of this \$2,000,000,000 system has raised dramatically the question of the financing of the public utility industry. In general, operating companies under the supervision of the state public utility commissions have been exempt from the provisions of the various Blue Sky Laws. George C. Mathews, Director of Securities Division, Wisconsin Public Service Commission, speaking before the

1932 Convention of the National Association of Security Commissioners, attacked the idea that public utility operating companies should be exempt. "Exemption based upon stock and bond regulation is based upon the untenable theory that those forms of regulation constitute an equivalent to Blue Sky regulation." In his judgment the whole problem of exempt securities need be restudied in the light of the 1929-1932 experience. This exemption has not applied to holding companies. Because of the complexity and widespread character of the properties of Holding Companies, however, it has been found difficult for Blue Sky Commissioners to judge intelligently the qualifications of these securities. It has been even more difficult for the public to appraise their value. This fact, in conjunction with the magic of the word "public utility," made reckless promotion of Holding Companies possible. The Foshay failure of 1930 and the Insull collapse of 1932 have opened the question of their future regulation.

Proposed Methods of Control.—In the main, doubt is expressed as to the effectiveness of state control exercised by Blue Sky Commissioners over the issuance of stocks and bonds of Public Utility Holding Companies. The Federal Power Commission in its special report to Congress stated that "public control of holding companies in the power utility field is absolutely essential in the public interest." During the year several alternatives for the present method of control have been considered:

(1) Regulation of Public Utility Holding Companies by State Public Utility Commissions—this is to be gained by extending the powers of state commissions to scrutinize the financial relationships between operating and holding companies. This, in conjunction with stricter Blue Sky regulation, would work for adequate protection of the investing public. (The possibilities of this approach were discussed by George Roberts of Bonbright and Co. before

the American Bar Association meeting in Washington, 1932.)

(2) Public Utility Holding Companies to be Placed under Supervision of Federal Power Commission—this would be exercised through the power to regulate the holding companies which held operating companies, licensees under the Federal Water Power Act. This would include all the important holding company groups in the country.

(3) Regulation of All Holding Companies by Federal Action—the Democratic Party Platform advocates "Regulation to the full extent of Federal Power of Holding Companies which sell securities in Interstate Commerce." Public utility holding companies, of course, would be included in the group as they typically distribute their securities over the nation.

RECAPITULATION

The year 1932 has not seen significant changes made in the structural laws of the various states in Blue Sky legislation. It is reported (*Investment Banking*, June 14, 1932) that 9 states only had regular legislative sessions. Of these the only significant change made occurred in New York where the Martin Act was extended and strengthened in making it compulsory for full business information for a five-year period to be filed by all applicants for a dealer's license. This provision appears to be an entering wedge by which the state security act may be transformed in fact from a "fraud act" to a "dealers' licensing act" and to the extent illustrates the tendency to strengthen the Blue Sky Law which has developed over the nation. The labor of the various state departments has not been lightened by the depression for, although the capital market is quiescent, nevertheless, there has been no decrease in the amount of obvious financial fraud. The central development of the year has been in the growing realization that the Blue Sky Laws have not worked to defend the savings of the great number of small investors throughout the nation.

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The Report of the Legislative Committee of the Investment Bankers Association submitted at the twenty-first Annual Convention stated that "Forty-four state legislatures will be in session next year. No one can be said to be immune from proposals for important and even radical modifications of the Blue Sky Laws, amendments to the banking acts, to the laws respecting corporate control, laws respecting the conduct of

dealers and brokers, holding companies, etc.'" (*Commercial and Financial Chronicle*, Vol. 135, page 3216, 1932.) It appears that the trend is to support stronger action by the Federal Government in the control of foreign securities and holding companies selling stock in inter-state trade. The trend in the control of real estate construction issues is difficult to appraise.

BANKING AFFAIRS

BY GURDEN EDWARDS

SECRETARY, ECONOMIC POLICY COMMISSION, AMERICAN BANKERS ASSOCIATION

CONTRACTION IN BANKS AND RESOURCES

Aggregate.—Banks of all classifications in the United States on June 30, 1932, numbered 19,163 institutions with aggregate resources of \$57,245,000,000, a decrease of 2,908 banks as compared with the number on the same date in 1931, and a drop of \$12,965,000,000 in resources. These data show that the decrease in numbers was at a very much greater rate even than for the unprecedented years 1930 and 1931 which recorded respectively reductions of 1,251 and 2,008 banks. The contraction in resources was also markedly greater than for the 1930-31 period which amounted to \$3,810,000,000. Aggregate capital, surplus and undivided profits of American banks June 30, 1932, totaled \$8,100,000,000, a decrease in the year of \$1,375,000,000 in these consolidated items, as compared with a \$535,000,000 decrease the previous year. Total deposits were \$45,390,000,000, a decrease that amounted to \$11,475,000,000 as compared with a decrease of \$2,980,000,000 recorded for this figure the preceding year.

Classification.—Official reports on banks by classes show there were on June 30, 1932, 6,150 national banks, a drop in a year of 655 in this class; 10,455 state chartered commercial banks, a drop of 1,804; 1,235 trust companies, a drop of 234; 1,096 savings banks, a drop of 158; and 227

reported private banks, a drop of 57. These figures disclose that every class of bank contributed to the general shrinkage in numbers. Consolidation of banks into larger units both in city and country districts, largely through necessity or expediency, continue to be an important factor in reducing the number of banks during 1932 as in 1931, giving the nation fewer but larger and stronger banking institutions on the general average. The more drastic factor, however, was the continued acute though lessened scale of bank failures.

RESTORATION OF CONFIDENCE IN BANKS

These historic contractions in banking figures were wholly consistent with the basic economic and financial phenomena of 1932, just as similar, though smaller, changes had been the preceding year. Continued business contraction and lower commodity price levels called for smaller total volumes of credit, and these facts were inevitably reflected in the shrinkage in commercial banking loans and deposits. There was, however, a fundamental change in the conditions that accompanied this continued readjustment of the banking structure to the new economic times. Whereas the previous year acute public uneasiness had caused a great volume of withdrawals by panic-stricken depositors, 1932 was characterized by

the virtual disappearance of such manifestations, as public confidence in the banks that had survived the previous stages of the depression was restored by the marked drop in the number of bank failures and by the support given the banking structure through such measures as the Reconstruction Finance Corporation. This emergency measure was put into operation early in 1932, and enabled banks to obtain government loans on the security of their sound assets to meet their cash requirements without sacrificing their securities investments under unfavorable market conditions or forcing the rapid reduction of loans to customers.

BANK FAILURES

Official reports show there were during the first ten months of 1932 1,199 bank suspensions, tying up deposits of \$605,000,000. The year showed a distinct recession in the number of failures, there being 342 in January and 97 in October. As in the previous period no really large banks were included among these failures and relatively few were in large cities, the great majority occurring in smaller cities and in the rural districts and consisting of banks far below the average in size. The causes continued to be mainly the reactions from the general industrial, commercial, agricultural and financial depression which fell upon the small banks in rural places with particular severity, due to their lack of sufficient capital strength and diversity or vitality of business environment to withstand the effects of the cumulative intensity of the three-year depression. The impairments of investment securities and business obligations making up banking assets, as a result of the general economic breakdown, was the chief channel through which economic adversities reacted on the banks.

BANKING REFORM

The banking problem presented by the number of failures since the depression began continued prominent through the year as a major question of public policy. This brought forth

many proposals for banking reform through legislation. Among the more important specific Federal legislative proposals were measures aimed to separate all investment activities from national and state commercial banks in the Federal Reserve System; to give statewide branch banking powers to national banks in all states regardless of state laws limiting or prohibiting such powers for state banks, and to bring all commercial banks under Federal charter, supervision and control by prohibiting that type of banking to institutions under state charter. Opinion among bankers on these proposals was divided, although it was widely agreed that investment affiliates operated by banks should be subject to examination by the bank supervisory authorities, and there was a distinct change of sentiment favorable to some form of extension of branch banking as a measure of strengthening banking conditions, especially in rural districts unable to support adequately capitalized and managed separate banking units. The managers of leading bank group organizations were especially advocacy of a wide extension of branch banking powers that would permit the conversion of their systems of affiliated institutions to a branch banking basis as constituting a preferable method of providing strong banking conditions for wide agricultural areas, bringing them the benefits of the large capital and superior managerial powers possessed by big banks in the chief city economic centers.

While banking opinion was not opposed to banking changes by law in the public interest so far as they represented sound technical improvements and safeguards against undesirable practices, bankers were outspoken in opposition to proposals of a drastic and unsettling character, or to measures demonstrably unsound such as the guaranty of deposits or the immediate forced separation of investment affiliates from their parent banks. They also pointed out that severe economic readjustments, although unfortunate, destructive, in many cases, of good banks and other-

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wise sound conditions, and undesirable in themselves, had nevertheless already eliminated many of the weaknesses and unsatisfactory conditions that had contributed to the banking problem. A study of the question of bank failures by the Economic Policy Commission of the American Bankers Association declared that the American banking system had formerly developed more banks than required by the economic needs of the nation but that there had been in recent years a marked correction through the reduction of the number of banks from 30,000 to less than 20,000 through suspensions, consolidations, and voluntary liquidations, with the result that many uneconomic units were eliminated and the position of the remaining institutions strengthened. In the main, these processes had weeded out institutions that should never have been granted charters because of inadequate capital, lack of proper qualifications to engage in banking on the part of their organizers, or insufficient available business to support them in the places where they were started; also banks in places where probably permanent local changes later reduced the volume of available business to a point below the amount necessary to support then existing banking facilities, and institutions in which improper or incompetent management had come into control.

This Commission also discussed as a leading matter of banking concern proposals put forward for a single, unified system for the country as a whole under Federal Government supervision on the theory that this would make for better supervision, a more compact and better coordinated banking structure, a nationally higher standard of management for all banks and a credit mechanism that would be subject to greater control in the national interest. While in sympathy with the basic purposes of this argument the Commission took the stand that they could be attained under the present dual systems of state and national charters, that this has additional virtues along the lines of maintaining local financial inde-

pendence and credit sympathies free from the domination of over-centralized Federal Government and that it should be strengthened rather than destroyed. It urged material enlargement of the sphere of the Federal Reserve System in the present banking structure to promote unity in the operating aspects of commercial banking embracing both state and national banks, without abrogating their respective charter rights or nullifying the advantages of the dual situation. This study brought out that already trends had reduced the ratio of banks outside the System to 62 per cent as to numbers, while there had occurred marked rises in the ratios of banking funds and activities comprised under its influence, since 75 per cent of the nation's commercial banking capital funds, 79 per cent of the deposits and 78 per cent of the loans and investments held by banks in the commercial field were in members of the Federal Reserve System.

CENTRAL GOVERNMENT CONTROL OF BANKING

Francis H. Sisson, Vice President Guaranty Trust Company, New York City, President, American Bankers Association, emphasized the element of general public policy involved in plans for greater central government control of banking as follows in a public address: "The two proposals for setting up branch banking in all States through the national banking system, regardless of State laws in respect to branch banking, and also for bringing all commercial banking into a unified system under central Government control, are definite plans for reform that must be considered carefully and deliberately on their merits, and are too important to be decided hastily. Many bankers will favor them, many others will vigorously oppose them. Both groups will have sound reasons for their attitudes. In the end, however, the public interest is paramount and must be the deciding factor. Theoretically, it may be possible to show that a unified system has certain definite advantages over the present plan of

TRUST BANKING

forty-eight State systems in addition to the national banking system. The argument can be cogently made that, as an abstract technical proposition, a more scientific and better balanced banking mechanism can be set up in a single unified system, under centralized control. Yet, after all, this is America with its deep-seated traditional aversions to centralized financial control, and with its forty-eight States, that are independent commonwealths—independent nations almost, in some senses—and doubtless against any plan of unification, powerful arguments and opposition would be marshalled. The argument would logically be made on this side also that our decentralized basic social and political set-up must be taken into consideration as belonging to the real substance of the matter and given its hearing. It will be recalled that when the Federal Reserve System was set up, the original plan contemplated a single central bank. But insistence on this would have defeated the whole plant with all its other virtues. Therefore, in place of one bank, twelve regional Federal Reserve banks were created—not because that was a better banking plan, but simply because it was the only plan that was politically possible. A similar two-sided argument presents itself in regard to the development of a consistent branch banking system for the nation as a whole by Federal Government policy as opposed to free,

autonomous State policy. The American system of decentralized community life is always a real factor to be considered carefully. It doubtless adds to the difficulties of the banking problem. It may be possible to work out a constructive compromise. But any plan of banking reform must be conceived with full regard to this factor that of itself is a non-banking factor to be sure, but is nevertheless an inherent part of American national life."

AMERICAN BANKERS ASSOCIATION CONVENTION

The American Bankers Association, the national organization of banking including in its membership the great majority of the 19,000 national and state commercial banks, trust companies and savings banks in the nation, held at Los Angeles, California, in 1932 its fifty-eighth annual convention. The general officers of the Association elected for 1932-1933 were: President, Francis H. Sisson, Vice President Guaranty Trust Company, New York City; First Vice President, F. M. Law, President First National Bank, Houston, Texas; Second Vice President, Rudolf S. Hecht, President Hibernia Bank & Trust Company, New Orleans, Louisiana; Treasurer, P. D. Houston, Chairman of Board American National Bank, Nashville, Tennessee; Executive Manager, F. N. Shepherd, American Bankers Association, New York City.

TRUST BANKING

BY GILBERT T. STEPHENSON

VICE PRESIDENT, EQUITABLE TRUST COMPANY, WILMINGTON, DELAWARE

BANK SUSPENSIONS

The most pertinent current question about trust banking is, How have trust institutions met the test of recent economic dislocations and bank failures? Fortunately, practically complete figures for 1931 became available the latter part of 1932, which makes it possible to answer this question definitely. The year 1931 is the latest available period for which one

may make a study of the trust assets of suspended banks. Certainly it will be remembered as the year of bank suspensions. During 1931, 2,298 banks were closed, of which 409 were national banks and 1,889 were state banks and trust companies. Of the 1,889 state banks and trust companies only 108 or 5 per cent were members of the Federal Reserve System. The same year, it is worth not-

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ing, 276 banks were reopened, of which 25 were national and 251 state, and 31 members and 245 non-members of the Federal Reserve System.

TRUST INSTITUTIONS AND VOLUME OF TRUST ASSETS

National Banks.—On Jan. 1, 1931, there were 6,973 national banks (treating a national bank and all its branches as one). Of these, 1,856 had established trust departments. Of the 1,856 only 59 or three per cent were suspended during 1931. Of \$5,250,000,000 of trust assets of all national banks, only \$75,500,000 were being administered by the 59 banks, half of which was in one of them alone—namely, the Bank of Pittsburgh, N. A.

State Banks and Trust Companies.

—Of the 1,889 state banks and trust companies suspended during 1931, 1,416 were located in the 42 states (including the District of Columbia) for which we have the figures. Of these 1,416, only 190, or 13 per cent, located in 22 states had any trust assets. In 20 of the 42 states—practically one-half of the states reporting—the suspended state banks and trust companies had no trust assets at all. Even though we do not have the amount of trust assets involved in all the state banks and trust companies suspended during 1931, we do have the figures for 143 of the 190. The trust assets vary in amount from a few dollars only to several million. In one state, for example, the total amount of trust assets of suspended state banks and trust companies was only \$88.16; in another, \$1,209.48; in another, \$10,000; in another, \$20,803.99. In only five of the 19 states from which we have figures did the aggregate trust assets of all the suspended state banks and trust companies in that state amount to as much as \$1,000,000; and the average for the 143 institutions, including the large institutions suspended in populous States like Ohio, Pennsylvania, and New York, is about two and a half million dollars.

SAFETY OF TRUST ASSETS

Segregation.—In theory, the safety of trust assets is assured by two

fundamental principles of trust administration—one segregation and the other special safeguards. By segregation we mean that the trust assets are kept separate from the bank's own assets, that the assets of one trust are kept separate from those of every other trust, that there is a separate department for trust business, separate vaults, separate officers and employees, separate books, separate audits—separation all the way through.

Special Safeguards.—By special safeguards we mean that, in addition to the fidelity bonds that apply equally to all the officers and employees of the institution, uninvested trust funds are protected either by the deposit of securities by the trust institution or by the preference that the statutes give trust deposits over general deposits. As to invested trust funds, we mean the special vault equipment and control and audit provided by trust institutions for their trust investments. In practice, how safe are trust assets?

Bank of Pittsburgh.—The largest national bank, which was also a trust institution, that was suspended during 1931 was the Bank of Pittsburgh, N. A. It had \$36,000,000 trust assets. The receiver of the bank promptly placed one of his assistants in charge of the trust department to supervise the trust officer and the trust department employees who were retained in the service after the bank was closed. One who is thoroughly familiar with the way the trust assets of the Bank of Pittsburgh, N. A., have been handled, says: "The income has been remitted regularly to the beneficiaries of its estates. Interest has been collected on trust investments. Accounts have been filed in the Orphans Court covering the administration of estates in process of settlement where the time for filing accounts has elapsed and the estates are ready to be distributed. Every dollar of the uninvested cash on deposit by the trust department with the banking department of the Bank of Pittsburgh has been repaid, because Government bonds in excess of the deposits were pledged in the hands of the trust department to protect its cash deposits.

There has been no criticism in Pittsburgh of the handling of the trust department by the receiver. Were it not for the natural timidity occasioned by the closing of the bank and the necessity of selecting a successor, I doubt if many of the trust beneficiaries would have known that any change had taken place." (*Trust Companies*, January, 1932, pp. 21, 23-24.)

Comptroller's Statement. — The Comptroller of the Currency, speaking of all the national-bank trust institutions that were suspended during 1931, says: "The law and the regulations are very specific in requiring national banks exercising trust powers to segregate all assets held in any fiduciary capacity from the general assets of the bank. Furthermore, uninvested trust funds which are deposited in the commercial or savings department of the national bank are required to be adequately secured by United States or other readily marketable securities. No instance has been reported where a loss has occurred to an estate under administration by a national bank by reason of the bank becoming insolvent."

Bank of United States.—The largest state-bank trust institution that was suspended was the Bank of United States of New York City, which at the time of its suspension, Dec. 11, 1930, had in its trust department \$25,000,000 in collateral, \$29,000,000 in corporate bonds outstanding, and \$700,000 in cash. Soon after the suspension the Bank Examiner said: "We have segregated all the trust assets and are performing all trust functions under the various trust appointments as evidenced by indentures, wills, agreements, and other documents. . . . The net result is that the closing of the bank did not affect in any manner the administration, execution or safety of the trusts of its clients." In June, 1932, the Bank Examiner reported: "Liquidation of the personal trust department of the Bank of United States is virtually complete. . . . No beneficiary, creator, or any other party to a personal trust has lost a cent of trust funds or income as a result of the bank's closing. . . . We have paid trust income to

beneficiaries, disbursed trust principal when so directed, and carried out the various trustees' duties set forth in the trust agreements in the same manner as would a going institution, and our records show that in all cases, the inviolability of trust assets has been preserved."

New York Banking Department.—

With reference to, not the Bank of United States alone, but all the suspended state banks and trust companies in New York State—28 in 1931 of which 8 had trust assets—the Banking Department of the State of New York reported on June 14, 1932, that, according to its records and so far as it is aware "there have been no losses (exclusive of any depreciation in the market value of trust securities) to the beneficiaries of any trust or estate funds which have been managed by a trust company or a bank under the supervision of this department."

Comparative Figures. — Of the 20,747 banking institutions in the United States on Jan. 1, 1932, less than 4,000—i.e., less than one in five—were trust institutions in name even or to the extent of having exercised trust powers. Of the 2,298 banks that were suspended in 1931, only about 300 (estimating the seven states for which we do not have figures at the same ratio as the 42 for which we do), or one in seven had any trust assets. The trust assets that were involved in these 300 suspended banks, that were also trust institutions in a small or large way, have been amply protected by the segregation of trust assets, by the deposit of securities to protect trust funds, and by the statutory preferences given to trust deposits over general deposits. Furthermore, there has been little or no break in the continuity or let-down in the quality of service to the beneficiaries of those trusts, even while the banks were in process of liquidation and the estates and trusts in process of transfer to new administrators and trustees.

Public Confidence.—The recent suspensions and failures of banks so far from shaking public confidence in corporate trusteeship, have only served to call the attention of the public in

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a most impressive way to the safeguards and protections that are thrown around trust estates committed to banks and trust companies.

THE OUTLOOK

Facing forward, one is led to believe that the two opportunities of trust institutions which lie immediately ahead are, first, to help living men to re-create their estates (not merely to settle the estates of the deceased) and, second, to help industry to meet its social obligations to its employees. As to the first, we may expect a marked increase in the num-

ber of living trusts and managing agencies for individuals as soon as revival in business gets under way. As to the second, it is noticeable already that industry is considering the wisdom of trusteeing irrevocably the reserves it proposes to set up, as soon as the return of prosperity is assured, for the stabilization of employment, for the relief of the incapacitated, for the reward of special merit, for the support of the retired, for the encouragement of thrift, for the promotion of profit-sharing, and in other ways for forestalling a recurrence of unemployment and improvidence.

THE FEDERAL RESERVE SYSTEM

BY CARL E. PARRY

ASSISTANT DIRECTOR OF RESEARCH AND STATISTICS, FEDERAL RESERVE BOARD

RESERVE BANK CREDIT

Fluctuation.—During the year ended Nov. 30, 1932, Federal reserve bank credit increased by \$270,000,000, as the net result of an increase of \$380,000,000 in the seven months from November, 1931 to June, 1932, and a

decrease of \$110,000,000 thereafter. The increase was concentrated in the second quarter of the year, when it reflected an increase in the demand for reserve funds arising from a large outflow of gold to foreign countries in May and June and a further increase toward the end of June in the demand for currency, largely for hoarding. Reserve bank credit decreased in the second period chiefly in consequence of a renewed inflow of gold and a return from circulation of some of the currency that had previously gone into hoards. The accompanying table shows for Nov. 30, 1932, the volume of reserve bank credit and related items, with the changes for the year, and for the 7-month period from November, 1931 to June, 1932.

Composition of Reserve Bank Credit.—The growth in reserve bank credit during the year was in the form of reserve bank holdings of United States Government securities purchased in the open market. The reserve banks began to purchase additional securities toward the end of February and continued until about the end of June, during a period when the outflow of gold to foreign countries and the domestic demand for currency were both on a

RESERVE BANK CREDIT AND PRINCIPAL FACTORS IN CHANGES (In millions of dollars)

	Nov. 30, 1932	Changes	
		Total, Year ending Nov. 30, 1932	7 Months ending June 30, 1932
Bills discounted.....	309	—409	—278
Bills bought.....	35	—417	—385
United States Government securities.....	1,851	+1,134	+1,607
Other reserve bank credit.....	8	—36	—25
Total reserve bank credit.....	2,202	+271	+379
Monetary gold stock...	4,340	—74	—495
Treasury currency adjusted.....	1,923	+154	+67
Money in circulation...	5,648	+113	+159
Member bank reserve balances.....	2,411	+360	—69
Unexpended capital funds, non-member deposits, etc.....	407	—120	—139

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large scale. During this period of about four months the \$1,100,000,000 of funds arising from the open-market operations were employed by the market to meet the demands for gold and currency, to reduce by \$70,000,000 the reserve banks' portfolio of acceptances, and by \$365,000,000 the volume of member bank borrowings at the reserve banks. After the middle of the year, when the supply of reserve funds was being increased by the receipt of gold from abroad, of currency returning from hoards, and through the issue of additional national bank notes, the Federal reserve banks' portfolio of United States Government securities was maintained at a constant level. Receipt of funds from the sources mentioned enabled the member banks to reduce their discounts at the reserve banks between June and November by an additional \$130,000,000, and at the same time to increase considerably their deposits with the reserve banks. Member bank borrowing at the reserve banks, amounting at the end of November, 1932 to \$300,000,000, was at the lowest level since the autumn of 1931 and showed a decrease of \$400,000,000 for the year.

MEMBER BANK RESERVE BALANCES

The balances maintained by member banks at the reserve banks increased

during the twelve months by \$360,000,000, reflecting a decrease of \$70,000,000 during the first seven months and an increase of \$430,000,000 thereafter. The reduction during the first period in reserves held by the member banks was accompanied by a substantial decrease in their reserve requirements. This decrease arose from the reduction in their deposits that resulted from the export of gold, from the withdrawal of additional currency for hoarding, and from further liquidation of bank loans. After the middle of the year, when the gold and currency movements were reversed, the liquidation of loans became less rapid, and the growth in the banks' holdings of investments contributed to an increase in their deposits and consequently in their reserve requirements. The increase in reserve requirements, amounting to about \$100,000,000 in the four months ended with November, was much more than covered by the growth in reserve balances, so that at the end of the period the member banks held about \$500,000,000 of excess reserves. These excess reserves represent idle assets available for use in expanding their loans and investments, and the large volume in the autumn of 1932 was accordingly an important factor in increasing the supply of bank funds seeking investment.

MEMBER BANK RESERVE BALANCES

(Averages of daily figures. In millions of dollars)

Month	Reserves held— all member banks	Reserves required— all member banks	Excess Reserves			
			Total— all member banks	New York City ¹	Other reserve cities	"Country" banks
1932—January.....	1,979	1,944	35	4	2	29
February.....	1,907	1,863	44	7	11	25
March.....	1,899	1,840	59	18	17	24
April.....	1,996	1,844	152	88	36	28
May.....	2,138	1,861	277	155	92	31
June.....	2,062	1,828	234	89	111	34
July.....	2,003	1,799	204	75	92	38
August.....	2,073	1,803	270	128	109	33
September.....	2,181	1,836	345	193	120	32
October.....	2,307	1,871	436	242	160	34
November.....	2,378	1,896	482	267	181	34

¹ Central reserve city banks only.

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MEMBER BANK CREDIT

From the early part of 1931 to the middle of 1932 there was a rapid decline in member bank credit, as indicated by the course of total loans and investments of reporting member banks in leading cities. This decline came to an end in mid-summer, however, and thereafter there was some increase in the total loans and investments of these banks. This increase occurred chiefly at banks in New York

City during the autumn and consisted of an increase in member bank holdings of investments, principally United States Government securities. Reporting banks in other leading cities also increased their investments in Government securities. Member bank holdings of other securities remained at a fairly constant level, while loans continued to decline but not at so rapid a rate as earlier in the year.

REPORTING MEMBER BANKS IN LEADING CITIES (Amounts in millions of dollars)

	November 30, 1932			Changes from Dec. 2, 1931 to June 29, 1932		Changes from June 29, 1932 to Nov. 30, 1932	
	Total	New York City	Other lead- ing cities	New York City	Other lead- ing cities	New York City	Other lead- ing cities
Loans and investments— total.....	19,002	7,169	11,833	—647	—1,455	+635	—387
Loans on securities.....	4,288	1,598	2,690	—543	—519	— 98	—359
All other loans.....	6,125	1,900	4,225	—292	—733	— 57	—336
United States securities...	5,266	2,578	2,688	+245	— 24	+657	+355
Other securities.....	3,323	1,093	2,230	— 57	—179	+133	— 47

MONEY RATES

Increased ease in the money market, as indicated both by the diminished volume of member bank discounts and by the increase in their excess reserves, was reflected during the year in easier money rates on short-term paper. The rate on short-term Government securities became nominal in the autumn of 1932 and the rate on acceptances and open-market commercial paper declined to a low level. Rates to customers, however, outside of New York, showed relatively little decline during the year. They advanced sharply at the time of the gold export movement in the autumn of 1931 and remained at a fairly high level thereafter.

GOLD MOVEMENTS

During 1932 the principal countries operating on an unrestricted gold standard, in addition to the United States, were France, Belgium, Nether-

lands, and Switzerland. France was the only country during the 11 months ended with November that acquired gold in considerable volume. The movement of gold to France was chiefly in the first six months of the year, after the Bank of France had begun converting into gold its large balances maintained in foreign money markets, particularly New York and London. A large part of the balances held in London were used to purchase gold coming on the bullion market from India and from new production in South Africa and elsewhere. The gold coming from India, which amounted to about \$170,000,000 in the first eleven months of 1932, was not withdrawn from India's central reserves but was released from the private hoards of the Indian people who were in a position to make a profit by changing their gold into sterling or rupees at a substantial premium owing to the prevailing dis-

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count of these currencies from parity. There was also a large withdrawal during the first half of 1932 of balances accumulated by foreign central banks in the United States, and during this period this country lost more than \$550,000,000 of gold. By the end of June, however, these balances had been reduced to a relatively small volume and in the succeeding five months French gold reserves increased only slightly, while the monetary gold stock of the United States increased by more than \$400,000,000. For the

eleven-month period as a whole the principal changes in central gold reserves were decreases of about \$170,000,000 in the United States and \$40,000,000 in Germany, and increases of about \$570,000,000 in France, \$90,000,000 in England, \$60,000,000 in Netherlands, and \$40,000,000 in Switzerland. During the same period the combined gold reserves of central banks and governments in the 49 countries for which satisfactory figures are available increased about \$570,000,000.

GOLD RESERVES OF CENTRAL BANKS AND GOVERNMENTS¹ (In millions of dollars)

Country	November 30, 1932	Changes		
		6 Months ending June 30, 1932	5 Months ending Nov. 30, 1932	11 Months ending Nov. 30, 1932
United States.....	3,885	—585	+419	—166
Canada.....	86	.....	+ 8	+ 8
EUROPE:				
Belgium.....	362	+ 3	+ 5	+ 8
England.....	678	+ 75	+ 15	+ 90
France.....	3,267	+519	+ 49	+568
Germany.....	197	—36	— 1	— 37
Italy.....	306	+ 2	+ 8	+ 10
Netherlands.....	415	+ 37	+ 21	+ 58
Spain.....	436	+ 1	+ 1	+ 2
Switzerland.....	493	+ 50	— 10	+ 40
U. S. S. R.....	² 368	+ 21	+ 19	+ 40
LATIN AMERICA:				
Argentina.....	249	— 4	.....	— 4
FAR EAST:				
Australia.....	42	.....	— 10	— 10
India.....	162	.....	.....	.....
Japan.....	213	— 20	— 1	— 21
34 other countries.....	² 700	— 4	— 12	— 16
Total (49 countries).....	² 11,859	+ 59	+511	+570

¹ Source.—*Federal Reserve Bulletin* for January, 1933.

² Preliminary figures.

RECONSTRUCTION FINANCE CORPORATION

When Congress convened in December, 1931, the number of banks currently suspending operations had again increased substantially, after a temporary decrease in November, and a bill was introduced for the establishment of a Reconstruction Finance Corporation, with a capital of \$500,000,000 supplied by the United States Treasury and authority to borrow up

to \$1,500,000,000, that would be authorized to make loans to banks and other financial institutions and to railroads. The bill creating the Corporation was approved by the President Jan. 22, 1932, and the institution began to make loans early in February. During the following 8 months the Reconstruction Finance Corporation authorized loans to about 5,000 banks and nearly 1,000 other institutions, and had outstanding on

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September 30 about \$1,000,000,000 of loans, of which more than half represented loans to banks.

The operations of the Reconstruction Finance Corporation had an important influence in sustaining the banking structure of the country, in diminishing bank failures, and consequently in restraining the withdrawal of currency from banks for hoarding. Bank suspensions decreased from more than 300 per month in December and January to considerably less than 100 per month in March, April, and May. In June and July, when gold was leaving the country in large volume and there was acute disturbance in the securities markets, the number of bank suspensions increased again, but not to the earlier high level. For the first eleven months of 1932 the total number of bank suspensions was about 1,300 compared with about 2,300 in the year 1931 and about 1,350 in the year 1930; the corresponding figures of deposits were approximately \$650,000,000, \$1,690,000,000, and \$865,000,000.

AMENDMENTS TO THE FEDERAL RESERVE ACT

During 1932 the Federal Reserve Act was amended in February by the Glass-Steagall Act, in May by Sections 5 and 6 of an act relating to the Federal Farm Loan System, and in July by Section 210 of the Emergency Relief and Reconstruction Act. The May amendment authorized the Federal Reserve banks to discount certain paper for intermediate credit banks and to accept certain obligations of these banks as collateral security for loans to member banks. The July amendment empowered the Federal Reserve Board, in unusual and exigent circumstances and in accordance with prescribed safeguards, to authorize any Federal Reserve bank to discount certain paper for individuals, partnerships, and corporations. The February amendments, embodied in the Glass-Steagall Act, (1) provided means by which, in unusual circumstances and under definite restrictions, member banks might receive assistance from Federal reserve banks on the basis of security not

otherwise eligible for the purpose, and (2) authorized the Federal reserve banks, under certain conditions and until March 3, 1933, to include United States Government obligations as part of the collateral against Federal reserve notes. With this change in collateral requirements, it became possible during the period specified for the Federal reserve banks to meet, within the limits of their excess gold reserves, any drain, whether a gold drain from abroad or an additional currency demand from the American public, without the necessity for member banks to incur an additional burden of indebtedness.

On February 24, before the passage of the Glass-Steagall Act the excess gold reserves of the Federal reserve banks amounted to \$1,392,000,000, of which \$416,000,000 represented gold not required either as reserves or as collateral, while \$976,000,000 represented gold that was required as collateral against Federal reserve notes over and above the amount required as reserves. Between this date and July 6, when the demand for currency was at its peak, the member banks had to meet a demand for gold from abroad and for currency at home amounting in the aggregate to more than \$600,000,000, and they were enabled, through substantial purchases of Government securities by the reserve banks during this period, a part of which were pledged as collateral for notes, both to meet this demand and in addition to reduce their indebtedness at the reserve banks from the \$800,000,000 level to the \$500,000,000 level. Provisions of the Glass-Steagall Act relative to the collateral requirements of Federal reserve notes, therefore, made it possible for conditions in the money market to remain easy during a period of heavy strain.

NATIONAL BANK NOTE CIRCULATION

The Federal Home Loan Act, approved July 22, 1932, contained in Section 29 a provision relating to the issue of national bank notes that affected the composition of the country's currency and thereby the position of the Federal Reserve banks in

THE FEDERAL RESERVE SYSTEM

relation to the member banks and the general credit situation. This provision extended for three years the circulation privilege, previously possessed only by about \$675,000,000 of 2 per cent bonds, to all bonds of the United States bearing interest at a rate not in excess of 3½ per cent, amounting together at that time to more than \$3,700,000,000. Prior to this enactment, since almost all of the 2 per cent bonds had been absorbed by the national banks as security for their note issues, the volume of national bank notes was not capable of expansion, with the result that any increase in the public demand for currency was met by Federal reserve notes or by some other form of currency obtainable only by resort to the Federal reserve banks. The extension of the circulation privilege to about \$3,000,000,000 of additional bonds removed the \$675,000,000 limit to national bank note circulation, and this limit, under the National Bank Act, thereupon became about \$1,570,000,000, the approximate amount of the paid capital of the national banks.

Between July 22, when the new provision became effective, and Nov. 30, the national banks of the country increased the volume of their notes outstanding by about \$150,000,000, while during the same period the aggregate demand for currency increased by about \$50,000,000. Thus the increased demand for currency was met by the issue of additional national bank notes, without involving any increase in the demand for reserve bank funds, and in addition about \$100,000,000 of national bank notes were substituted in the circulation for other money, chiefly Federal reserve notes. The return of this other money to the reserve banks was thus an important factor, in addition to the inflow of gold from abroad, in increasing to the \$500,000,000 level the volume of excess reserves held by the member banks with the Federal reserve banks.

THE GLASS BANKING BILL

On March 17, 1932, Senator Carter Glass of Virginia introduced, on the

basis of an investigation begun in 1930 by a subcommittee of the Senate Committee on Banking and Currency, a bill (S. 4115) proposing many fundamental changes in the country's banking laws. This bill was submitted to the Federal Reserve Board for comments and suggestions, and the Board's report on the bill was presented to the Committee by Governor Meyer at a hearing on March 29, together with certain oral testimony. The report was in the form of a memorandum in which the bill was discussed in detail, and was accompanied by a letter of transmittal summarizing the Board's comments and recommendations regarding the bill. The full text of the report, of the accompanying letter of transmittal, and of a statement relative to the bill issued on March 29 by the Federal Advisory Council were published in the *Federal Reserve Bulletin* for April, 1932. The Board's report was based in part on the results of research carried on by the Federal Reserve System during recent years, including the investigation into bank reserves made in 1930 and 1931 by the Committee on Bank Reserves of the Federal Reserve System. The results of this investigation, as submitted in the autumn of 1931, were embodied in a proposal for a system of member bank reserves based on the velocity of deposits as well as on their volume.

MEMBERSHIP OF THE SYSTEM

During the year ended June 30, 1932, 38 banks joined the Federal reserve system and 106 withdrew from membership, including banks which withdrew as a result of conversion into, or absorption by non-member banks. Mergers between member banks, suspensions, and liquidations resulted in a net loss of 734 banks, so that total membership in the system showed a decline of 802 for the year, of which 655 were national and 147 state institutions. At the end of June, 1932, 6,980 banks, or approximately 37 per cent of all the banks in the country, belonged to the system, and these banks had loans and investments totaling \$28,001,000,000,

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or about 61 per cent of the total loans and investments of all banks, about the same proportion as in 1931 and 1930. The member banks com-
 | priced 6,145 national banks with loans and investments of \$17,448,000,000 and 835 state banks with loans and investments of \$10,552,000,000.

BANKS AND TRUST COMPANIES

BY GURDEN EDWARDS

SECRETARY, ECONOMIC POLICY COMMISSION, AMERICAN BANKERS ASSOCIATION

NATIONAL BANKS

Aggregate resources of all National banks in the United States dropped between June 30, 1931 and June 30, 1932 from \$27,640,000,000 to \$22,370,000,000 or in the amount of \$5,270,000,000, and their numbers decreased from 6,805 to 6,150, which
 | was a loss of 655. The year before, ending June 30, 1931 the aggregate resources of the National banks had showed a decrease of \$1,475,000,000. The following figures show the detailed changes which occurred in the condition of the National Banks:

RESOURCES AND LIABILITIES OF NATIONAL BANKS IN THE UNITED STATES AND POSSESSIONS JUNE 30, 1932, COMPARED WITH JUNE 30, 1931

(In thousands of dollars)

	June 30, 1931	June 30, 1932
Number of banks.....	6,805	6,150
Resources		
Loans and discounts (including rediscounts).....	\$13,177,485	\$10,281,676
Overdrafts.....	7,790	4,701
Investments.....	7,674,837	7,196,652
Banking house, furniture and fixtures.....	795,866	760,057
Real estate owned other than banking house.....	125,681	143,585
Cash in vault.....	368,589	338,404
Reserve with Federal reserve banks or other reserve agents.....	1,418,096	1,150,575
Due from banks.....	2,354,145	1,569,723
Exchanges for clearing house and other cash items.....	854,365	427,159
Other resources.....	865,844	495,179
Total resources.....	\$27,642,698	\$22,367,711
Liabilities		
Capital stock paid in.....	\$ 1,687,663	\$ 1,568,983
Surplus.....	1,493,876	1,259,425
Undivided profits—net.....	443,592	302,521
Reserves for dividends, contingencies, etc.....	130,599	148,919
Reserves for interest, taxes, and other expenses—accrued and unpaid.....	62,881	49,439
National bank circulation.....	639,304	652,168
Due to banks.....	2,746,412	1,800,217
Certified and cashiers' checks and cash letters of credit and travelers' checks outstanding.....	531,127	241,116
Demand deposits.....	10,105,885	7,940,653
Time deposits (including postal savings).....	8,579,590	7,265,640
United States deposits.....	235,226	213,287
TOTAL DEPOSITS.....	\$22,198,240	\$17,460,913
Bills payable and rediscounts.....	153,533	506,890
Agreements to repurchase securities sold.....	10,266	39,535
Acceptances executed for customers.....	442,235	279,220
Other liabilities.....	380,509	99,698
Total liabilities.....	\$27,642,698	\$22,367,711

Assets and Liabilities. — On the asset side, these data show decreases of \$2,895,000,000 in loans and discounts and \$478,000,000 in investments. On the liability side there was
 | a decrease of \$119,000,000 in capital, \$235,000,000 in surplus, \$141,000,000 in undivided profits, \$2,165,000,000 in demand deposits, \$1,314,000,000 in time deposits and of \$4,737,000,000 in

BANKS AND TRUST COMPANIES

deposit items of all classes combined.

Branch Banking increased in the national bank system during the year. Oct. 31, 1931 there were 1,184 branches officially reported, while on Oct. 31, 1932 there were 1,314, an increase of 130.

Trust Powers.—The wide practice of trust banking in the United States among banking institutions other than trust companies was evidenced by the facts that 2,238 national banks, or 36.4 per cent of the total number, held authority to exercise trust powers on June 30, 1932 and that 1,744 were exercising these powers through established trust departments, administering 104,288 trusts with individual trust assets aggregating \$4,462,000,000, while 775 national banks were acting as trustee for outstanding note and bond issues amounting to \$9,497,000,000.

Dividends and Earnings.—The national banks declared dividends dur-

ing the year ended June 30, 1932 of \$169,155,000 as compared with \$211,301,000 the previous year; their gross earnings amounted to \$1,090,000,000 as compared with \$1,308,764,000, net earnings \$318,443,000 as against \$360,740,000 and the 1931 item of net additions to profits amounting to \$52,541,000 was replaced by a deficit of \$139,780,000.

STATE BANKS

Resources.—State chartered commercial banks reported aggregate assets on June 30, 1932 at \$9,480,000,000, as compared with \$13,110,000,000 June 30, 1931, a decrease in a year of \$3,630,000,000, while the total number of these banks fell from 12,259 to 10,455, a loss of 1,804. The year before, ending June 30, 1931 banks of this class had shown a decrease of \$2,160,000,000 in resources. Detailed figures for the mid-year condition of this class of banks follow:

RESOURCES AND LIABILITIES OF STATE (COMMERCIAL) BANKS IN THE UNITED STATES AND POSSESSIONS JUNE 30, 1932, COMPARED WITH JUNE 30, 1931

(In thousands of dollars)

	June 30, 1931	June 30, 1932
Number of banks.....	12,259	10,455
Resources		
Loans and discounts (including rediscounts).....	\$ 7,270,126	\$ 5,130,709
Overdrafts.....	32,210	4,490
Investments.....	2,937,642	2,266,923
Banking house, furniture and fixtures.....	401,035	323,544
Real estate owned other than banking house.....	134,412	133,274
Cash in vault.....	274,922	225,472
Reserve with Federal reserve banks or other reserve agents.....	814,368	541,297
Due from banks.....	790,273	541,533
Exchanges for clearing house and other cash items.....	130,069	73,504
Other resources.....	325,070	238,052
Total resources.....	\$13,110,127	\$ 9,478,798
Liabilities		
Capital stock paid in.....	\$ 956,206	\$ 805,332
Surplus.....	665,752	526,841
Undivided profits—net.....	200,992	127,382
Reserves for dividends, contingencies, etc.....	89,906	96,174
Reserves for interest, taxes, and other expenses accrued and unpaid	25,693	20,633
Due to banks.....	622,526	378,393
Certified and cashiers' checks and cash letters of credit and travelers' checks outstanding.....	70,772	43,663
Demand deposits.....	4,581,490	3,076,752
Time deposits (including postal savings).....	5,274,952	3,569,752
United States deposits.....	86,165	81,083
Deposits not classified.....	5,538	4,461
TOTAL DEPOSITS.....	10,641,443	7,154,104
Bills payable and rediscounts.....	180,357	467,081
Agreements to repurchase securities sold.....	17,023	7,078
Acceptances executed for customers.....	54,073	36,720
Other liabilities.....	278,682	237,453
Total liabilities.....	\$13,110,127	\$ 9,478,798

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Loans and Deposits.—These data show decreases of \$2,140,000,000 in loans and discounts and of \$670,000,000 in investments. Capital also dropped by \$151,000,000, surplus by \$139,000,000, undivided profits by \$73,000,000, demand deposits by \$1,505,000,000, time deposits by \$1,705,000,000 and total deposits of all kinds by \$3,487,000,000.

TRUST COMPANIES

Number and Resources.—Trust companies on June 30, 1932 numbered 1,235 as compared with 1,469 a year earlier, a loss of 234 units, and they also showed a large decrease in gross resources, which stood at \$13,120,000,000 as against \$16,860,000,000 a year earlier, or a drop of \$3,740,000,000. The following data give the condition of the trust companies in detail:

RESOURCES AND LIABILITIES OF LOAN AND TRUST COMPANIES IN THE UNITED STATES AND POSSESSIONS JUNE 30, 1932, COMPARED WITH JUNE 30, 1931

(In thousands of dollars)

	June 30, 1931	June 30, 1932
Number of trust companies.....	1,469	1,235
Resources		
Loans and discounts (including rediscounts).....	\$ 7,860,418	\$ 5,901,338
Overdrafts.....	5,272	5,796
Investments.....	4,589,659	4,202,012
Banking house, furniture and fixtures.....	452,270	434,935
Real estate owned other than banking house.....	96,218	98,121
Cash in vault.....	186,193	156,397
Reserve with Federal reserve banks or other reserve agents.....	1,058,734	891,902
Due from banks.....	615,469	427,646
Exchanges for clearing house and other cash items.....	957,102	475,819
Other resources.....	1,039,655	524,864
Total resources.....	\$16,860,990	\$13,118,830
Liabilities		
Capital stock paid in.....	\$ 967,432	\$ 894,056
Surplus.....	1,620,525	1,343,982
Undivided profits—net.....	186,896	123,761
Reserves for dividends, contingencies, etc.....	127,904	189,087
Reserves for interest, taxes, and other expenses accrued and unpaid	7,113	5,877
Due to banks.....	1,452,777	1,028,976
Certified and cashiers' checks and cash letters of credit and travelers' checks outstanding.....	480,631	280,601
Demand deposits.....	6,493,383	5,285,355
Time deposits (including postal savings).....	4,157,143	2,988,301
United States deposits.....	122,992	127,256
Deposits not classified.....	13,106	3,511
TOTAL DEPOSITS.....	12,720,032	9,714,000
Bills payable and rediscounts.....	109,631	238,984
Agreements to repurchase securities sold.....	285,046	2,000
Acceptances executed for customers.....	442,099	212,367
Other liabilities.....	394,312	394,716
Total liabilities.....	\$16,860,990	\$13,118,830

Loans and Deposits.—These figures show a decrease in loans and discounts of \$1,960,000,000 and in investments \$390,000,000. Trust company capital dropped \$73,000,000, surplus \$277,000,000, undivided profits \$63,000,000, demand deposits \$1,210,000,000, time deposits \$1,170,000,000 and aggregate deposits \$3,010,000,000.

SAVINGS BANKS

Stock Savings Banks.—There were 1,096 savings banking institutions June 30, 1932, a decrease of 158. Of these institutions 502 were stock savings banks with aggregate resources of \$1,090,000,000 and with capital, surplus and undivided profits of \$86,600,000. These figures represent a loss in numbers of 152 for this class

BANKS AND TRUST COMPANIES

of bank, with a decrease of \$230,000,000 in point of total resources and \$16,630,000 in capital funds as compared with the corresponding date for 1931. Reflecting necessitous withdrawals by depositors as a result of unemployment, curtailed income or other adversities of the depression deposits declined in the stock savings banks in the year by \$230,000,000; the year before this loss was \$188,800,000. The following tables show the detailed changes in stock savings bank data in the year:

RESOURCES AND LIABILITIES OF STOCK SAVINGS BANKS IN THE UNITED STATES AND POSSESSIONS JUNE 30, 1932, COMPARED WITH JUNE 30, 1931

(In thousands of dollars)

	June 30, 1931	June 30, 1932
Number of banks.....	654	502
Resources		
Loans and discounts (including rediscounts).....	\$ 761,320	\$ 591,998
Overdrafts.....	165	93
Investments.....	365,912	350,573
Banking house, furniture and fixtures.....	32,753	26,733
Real estate owned other than banking house.....	21,444	21,735
Cash in vault.....	14,738	14,175
Reserve with Federal reserve banks or other reserve agents.....	75,846	54,359
Due from banks.....	44,695	26,731
Exchanges for clearing house and other cash items.....	3,095	2,018
Other resources.....	1,433	1,817
Total resources.....	\$ 1,321,401	\$ 1,090,232
Liabilities		
Capital stock paid in.....	\$ 51,855	\$ 43,964
Surplus.....	39,399	33,772
Undivided profits—net.....	11,980	8,861
Reserves for dividends, contingencies, etc.....	2,413	3,536
Reserves for interest, taxes, and other expenses accrued and unpaid	457	705
Due to banks.....	6,175	4,265
Certified and cashiers' checks and cash letters of credit and travelers' checks outstanding.....	349	291
Demand deposits.....	114,195	80,406
Time deposits (including postal savings).....	1,085,008	893,896
United States deposits.....	3,806	2,699
Deposits not classified.....	568	2
TOTAL DEPOSITS.....	1,210,099	981,559
Bills payable and rediscounts.....	4,223	17,113
Other liabilities.....	975	722
Total liabilities.....	\$ 1,321,401	\$ 1,090,232

Mutual savings banks numbered 594 on June 30, 1932, as compared with 600 a year before, and had aggregate resources of \$11,134,000,000. These figures represented a loss as to numbers of only 6 in the year and a decrease in resources of \$58,000,000. The aggregate surplus was \$890,000,000, a decrease of \$78,000,000 and undivided profits stood at \$153,200,000, a decrease of \$12,200,000. A rise in total deposits of \$4,000,000 was recorded for this class of bank in notable contrast with other banking figures. Their aggregate deposits were \$10,039,000,000 on June 30, 1932. The

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following figures show the detailed savings banks in the year ended June changes which occurred in mutual 30, 1932:

RESOURCES AND LIABILITIES OF MUTUAL SAVINGS BANKS IN THE UNITED STATES JUNE 30, 1932, COMPARED WITH JUNE 30, 1931

(In thousands of dollars)

	June 30, 1931	June 30, 1932
Number of banks.....	600	594
Resources		
Loans and discounts (including rediscounts).....	\$ 6,051,133	\$ 6,140,558
Investments.....	4,475,169	4,194,572
Banking house, furniture and fixtures.....	123,373	134,442
Real estate owned other than banking house.....	65,432	127,538
Cash in vault.....	38,229	55,994
Reserve with reserve agents.....	33,566	35,646
Due from banks.....	320,619	349,153
Exchanges for clearing house and other cash items.....	1,852	2,436
Other resources.....	82,415	93,798
Total resources.....	\$11,191,788	\$11,134,142
Liabilities		
Surplus.....	\$ 968,121	\$ 890,026
Undivided profits—net.....	165,417	153,222
Reserves for dividends, contingencies, etc.....	7,173	8,134
Reserves for interest, taxes, and other expenses accrued and unpaid	1,661	604
Due to banks.....	453	92
Certified and cashiers' checks and cash letters of credit and travelers' checks outstanding.....	36	152
Demand deposits.....	3,718	3,351
Time deposits (including postal savings).....	10,031,124	10,035,423
TOTAL DEPOSITS.....	10,035,331	10,039,018
Bills payable and rediscounts.....	4,528	17,477
Other liabilities.....	9,557	25,661
Total liabilities.....	\$11,191,788	\$11,134,142

While the foregoing data cover the specifically designated savings banking institutions, savings banking activities in the United States are not wholly comprised within such institutions. To find the full facts regarding savings deposits in banks it is necessary to go to the figures for all classes of banks as has been done by the Savings Division, American Bankers Association. The following tables give a statistical picture of savings in banks in 1931 as compared with the immediately preceding years:

SAVINGS DEPOSITS IN CLASSIFIED BANKS

(In thousands of dollars)

Year	Mutual Savings Banks	State Banks	Trust Companies	Private Banks	National Banks
1927.....	\$8,039,784	\$7,382,147	\$3,530,954	\$49,725	\$7,088,297
1928.....	8,668,090	7,597,977	4,080,324	16,797	8,049,773
1929.....	8,903,557	7,412,561	4,022,735	33,285	7,889,352
1930.....	9,205,580	6,810,033	4,349,057	23,546	8,096,776
1931.....	10,050,866	5,976,093	4,115,826	27,413	8,044,709
1932.....	10,039,958	4,259,494	3,005,439	17,997	6,958,458

TOTAL DEPOSITS AND DEPOSITORS IN ALL BANKS

Year	Total Savings Deposits	Total Number Savings Depositors
1927.....	\$26,090,902,000	48,354,784
1928.....	28,412,961,000	53,188,348
1929.....	28,217,656,000	52,815,903
1930.....	28,484,992,000	52,769,175
1931.....	28,214,907,000	51,399,446
1932.....	24,281,346,000	44,524,542

BANKS AND TRUST COMPANIES

School Savings.—Another important phase of savings is school savings banking, developed under the leadership of the American Bankers Association's Saving Division on a plan by which education in thrift is carried on along with other work in school hours on a wide scale throughout the country. The following data show the facts in this plan over a period of years, revealing a severe recession for the last year as the children were forced to draw on their savings by family difficulties:

SCHOOL SAVINGS IN THE UNITED STATES

Year	Number of Schools	Number Participating	Deposits	Net Savings
1926-27.....	12,678	3,742,551	\$23,703,436	\$ 9,464,178
1927-28.....	13,835	3,980,237	26,005,138	9,476,391
1928-29.....	14,254	4,222,935	28,672,496	10,539,928
1929-30.....	14,610	4,597,731	29,113,063	7,690,529
1930-31.....	14,628	4,482,340	26,783,610	2,342,888
1931-32.....	12,686	3,106,510	17,680,364	(Loss) 2,926,902

PRIVATE BANKS

The private banks reporting to the public banking authorities in the United States during 1932 numbered 227 institutions, a drop of 57 units in this class. Their aggregate resources were \$55,418,000 on June 30, 1932, a drop of \$26,727,000 in the year. Total capital funds of private banks were \$10,400,000, a decrease of \$2,870,000. Their total deposits were \$40,700,000, which was \$18,900,000 below the figure for the year previous.

RESOURCES AND LIABILITIES OF ALL REPORTING BANKS IN THE UNITED STATES AND POSSESSIONS JUNE 30, 1932, COMPARED WITH JUNE 30, 1931

(In thousands of dollars)

	June 30, 1931	June 30, 1932
Number of banks.....	22,071	19,163
Resources		
Loans and discounts (including rediscounts).....	\$35,164,850	\$28,074,640
Overdrafts.....	45,650	15,213
Investments.....	20,060,153	18,223,241
Banking house, furniture and fixtures.....	1,808,254	1,681,989
Real estate owned other than banking house.....	446,488	526,750
Cash in vault.....	884,327	791,627
Reserve with Federal reserve banks or other reserve agents....	3,402,189	2,674,941
Other amounts due from banks.....	4,133,720	2,920,092
Exchanges for clearing house and other cash items.....	1,946,709	981,057
Other resources.....	2,316,809	1,355,581
Total resources.....	\$70,209,149	\$57,245,131
Liabilities		
Capital stock paid in.....	\$ 3,669,998	\$ 3,317,864
Surplus.....	4,792,851	4,058,070
Undivided profits—net.....	1,010,128	716,598
Reserves for dividends, contingencies, etc.....	358,102	445,969
Reserves for interest, taxes, and other expenses accrued and unpaid	97,839	77,271
National bank circulation.....	639,304	652,168
Due to banks.....	4,828,741	3,212,110
Certified and cashiers' checks and cash letters of credit and travelers' checks outstanding.....	1,083,003	565,886
Demand deposits.....	21,326,210	16,405,579
Time deposits (including postal savings).....	29,159,361	24,774,389
United States deposits.....	448,189	424,325
Deposits not classified.....	19,240	8,000
TOTAL DEPOSITS.....	56,864,744	45,390,269
Bills payable and rediscounts.....	457,620	1,248,780
Agreements to repurchase securities sold.....	312,335	48,613
Acceptances executed for customers.....	938,407	528,310
Other liabilities.....	1,067,821	761,219
Total liabilities.....	\$70,209,149	\$57,245,131

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FOREIGN EXCHANGE

BY MARCUS NADLER

PROFESSOR, NEW YORK UNIVERSITY

FLUCTUATIONS

New Lows for Sterling and Yen.—

The year 1932 marked the return of fluctuating and depreciating currencies and the situation was similar to that prevailing shortly after the war. All efforts made during the post-war period toward the establishment of sound currency systems proved fruitless and at the end of 1932 the exchange and currency conditions of a number of countries were in many respects more difficult than at the end of 1919. During 1932 some of the exchanges, *e.g.*, pound sterling and yen, reached the lowest point in modern history. The pound on Nov. 29 was quoted in New York at \$3.14½, lower than any quotation reached in the post-war period. The Japanese yen reached a new low on the same day at \$0.20.

Causes for the fluctuation of the exchanges in 1932 were the same as those responsible for the abandonment of the gold standard and the introduction of foreign exchange restrictions during 1931; namely, the maladjusted balance of payments of

the individual countries, the lack of confidence which in turn results in a withdrawal of funds and the reappearance of the speculative element in the exchange market.

Exchange Groups.—The exchanges of Europe may be divided into three main groups: (a) those which remained on the gold standard and fluctuated only between the so-called gold points; (b) those technically off the gold standard, embracing all those countries which have established foreign exchange restrictions and prohibited the free buying and selling of foreign exchanges, a form of stabilization, and (c) those actually off the gold standard and which have fluctuated daily.

COUNTRIES ON THE GOLD STANDARD

At the end of 1932 only France, Holland, Switzerland, Belgium, and Poland were actually on the gold standard or its equivalent. The movement of these currencies is shown in the following table:

EXCHANGE RATES FOR GOLD CURRENCIES

(Monthly averages of noon-buying rates for cable transfers in New York; in cents per unit of foreign currency.)

	France (franc)	Switzerland (franc)	Netherlands (guilder)	Belgium (belga)	Poland (zloty)
Par value.....	3.92	19.30	40.20	13.90	11.22
1932:					
January.....	3.93	19.51	40.18	13.91	11.19
February.....	3.94	19.50	40.35	13.94	11.19
March.....	3.93	19.34	40.28	13.94	11.18
April.....	3.94	19.44	40.49	14.00	11.18
May.....	3.95	19.56	40.55	14.02	11.18
June.....	3.94	19.51	40.44	13.94	11.18
July.....	3.92	19.47	40.27	13.87	11.19
August.....	3.92	19.45	40.24	13.87	11.18
September.....	3.92	19.30	40.16	13.86	11.18
October.....	3.93	19.30	40.22	13.89	11.17
November.....	3.92	19.25	40.18	13.87	11.18

A careful analysis of these figures reveals that during the first half of the year the exchanges were very strong and, with the exception of Poland, were quoted above gold parity. Their strength reflected the

withdrawal of funds from the United States caused by the fear that the United States might be forced to abandon the gold standard. The result was a substantial export of gold from the United States to these

FOREIGN EXCHANGE

countries as may be seen from the following table:

GOLD MOVEMENTS TO AND FROM THE UNITED STATES, JANUARY-JULY, 1932 (In thousands of dollars)

	Imports	Exports	Net Exports
France.....	8	440,192	440,184
Switzerland...	—	118,516	118,516
Holland.....	—	115,277	115,277
Belgium.....	—	83,602	83,602

During the second half of 1932 the situation was completely reversed. The exchanges of the above-mentioned countries continued to decline and the movement of gold was reversed. This development reflected the constructive measures adopted in the United States such as the passage of the Glass-Steagall Bill and the establishment of the Reconstruction Finance Corporation which contrib-

uted to the restoration of confidence in our financial system. Up to the middle of December, 1932, the exchanges of the four gold standard countries were maintained above the gold export point. Based on the monetary stock of gold maintained by the respective countries and by the ratio of gold to notes in circulation, it is evident that these countries can easily maintain the stability of their exchanges even though they may have to part with some gold in the near future.

COUNTRIES TECHNICALLY OFF THE GOLD STANDARD

This category embraces countries like Austria, Czechoslovakia, Germany, Hungary, Roumania, Bulgaria and others. Official quotations remained more or less stable as may be seen from the following table:

EXCHANGE RATES FOR COUNTRIES TECHNICALLY OFF THE GOLD STANDARD

(Monthly averages of noon-buying rates for cable transfers in New York;
in cents per unit of foreign currency)

Country Currency Unit	Austria (Schilling)	Czecho- slovakia (Koruna)	Germany (Reichs- mark)	Hungary (Pengo)	Italy (Lira)	Bulgaria (Lev)	Roumania (Leu)
Par of Exchange.	14.07	2.96	23.82	17.49	5.26	.72	.60
1932:							
January.....	13.95	2.96	23.65	17.45	5.04	.72	.60
February.....	13.95	2.96	23.74	17.44	5.18	.71	.59
March.....	13.96	2.96	23.78	17.44	5.18	.72	.60
April.....	13.95	2.96	23.74	17.43	5.15	.72	.60
May.....	13.96	2.97	23.79	17.44	5.15	.72	.60
June.....	13.96	2.96	23.69	17.47	5.12	.72	.60
July.....	13.98	2.96	23.72	17.46	5.10	.72	.60
August.....	13.97	2.96	23.78	17.45	5.11	.72	.60
September.....	13.96	2.96	23.78	17.47	5.13	.72	.60
October.....	13.96	2.96	23.77	17.45	5.12	.72	.60
November.....	13.95	2.96	23.75	17.44	5.11	.72	.60

The stability of these exchanges was due to the fact that the official buying and selling of exchange was concentrated in the hands of the central bank and that the latter made exchange available only at the so-called "official" rate of exchange. Unofficially, however, the exchanges in many instances depreciated sharply. For example, the Austrian crown and the Hungarian pengo were selling in the bootleg market at a discount of more than 20 per cent. Furthermore, since these countries did not permit the payment of their external obligations in foreign exchanges there resulted an accumu-

lation of balances belonging to foreigners which could not be withdrawn. These balances were kept in so-called "blocked" accounts which could be utilized by the owner only for certain expenditures within the country. Since a number of foreigners could not utilize these balances they endeavored to sell them in the open market, and a regular market for blocked currencies was developed. Blocked accounts in Austria, Hungary, and other countries were selling at times at a discount of from 20 to 40 per cent. While officially the currencies of the countries belonging to this category remained

X. BUSINESS AND FINANCE

more or less stable, unofficially a number of them showed a substantial depreciation. Without rigid foreign exchange restrictions, without the introduction of standstill agreements and transfer moratoria these currencies could not be maintained even officially at their present level and any abandonment under present conditions of the above mentioned restrictions would immediately result in a sharp depreciation of these currencies.

COUNTRIES OFF THE GOLD STANDARD

The exchanges of these countries—England, Sweden, Norway, Denmark, Finland, Greece, and Yugoslavia—fluctuated broadly, as may be seen from the following figures:

EXCHANGE RATES FOR COUNTRIES OFF THE GOLD STANDARD

(Monthly averages of noon-buying rates for cable transfers in New York; in cents per unit of foreign currency)

Country Monetary Unit	England (Pound Sterling)	Denmark (Krone)	Finland (Markka)	Greece (Drachma)	Norway (Krone)	Sweden (Krone)	Yugoslavia (Dinar)
Par value.....	486.65	26.80	2.52	1.30	26.80	26.80	1.76
1932:							
January.....	343.12	18.88	1.50	1.29	18.70	19.19	1.78
February.....	345.63	19.02	1.50	1.29	18.77	19.29	1.78
March.....	363.93	20.01	1.60	1.29	19.60	19.85	1.78
April.....	375.00	20.53	1.72	1.23	19.08	19.09	1.77
May.....	367.51	20.07	1.72	.66	18.48	18.72	1.77
June.....	364.66	19.92	1.70	.64	18.06	18.70	1.74
July.....	354.96	19.20	1.54	.64	17.64	18.22	1.67
August.....	347.57	18.50	1.51	.63	17.41	17.85	1.69
September.....	347.11	17.98	1.50	.61	17.45	17.81	1.59
October.....	339.62	17.64	1.48	.60	17.18	17.53	1.41
November.....	327.53	17.06	1.44	.57	16.73	17.43	1.35

During the early part of the year these exchanges strengthened and showed a substantial increase reflecting to a considerable extent the movement of the gold currencies in Europe and the fear of the abandonment of the gold standard in the United States. Since the middle of the year, however, they have con-

tinuously declined and their movements were particularly violent toward the end of the year caused chiefly by the uncertainties concerning the war debt payments. Their wild fluctuation toward the end of November and the early part of December may be seen from the following figures:

MOVEMENT OF FOREIGN EXCHANGE

(Noon-buying rates for cable transfers in New York; in cents per unit of foreign currency)

Country Monetary Unit	England (Pound Sterling)	Denmark (Krone)	Finland (Markka)	Greece (Drachma)	Norway (Krone)	Sweden (Krone)	Yugoslavia (Dinar)
Par value.....	486.65	26.80	2.52	1.30	26.80	26.80	1.76
Nov. 14.....	333.08	17.33	1.44	.58	16.92	17.65	1.37
16.....	331.67	17.27	1.45	.58	16.85	17.56	1.35
18.....	329.13	17.11	1.45	.57	16.76	17.46	1.35
21.....	327.54	17.05	1.44	.56	16.70	17.41	1.34
23.....	326.77	17.02	1.44	.57	16.71	17.45	1.34
25.....	321.61	16.82	1.43	.57	16.51	17.39	1.34
28.....	318.01	16.62	1.42	.56	16.44	17.33	1.34
30.....	319.32	16.64	1.41	.56	16.64	17.44	1.34
Dec. 2.....	320.28	16.77	1.42	.56	16.49	17.60	1.34
5.....	318.85	16.55	1.41	.56	16.38	17.47	1.34

FAR EAST EXCHANGES

China.—The movement of the Far Eastern exchanges depends primarily on whether they are linked up to gold or silver. The latter applies particularly to China. Silver prices during 1932 have been more stable

than in the previous years and hence the movement of the Chinese currency has been subject to less fluctuations.

Japan.—On Dec. 13, 1931, Japan reimposed the gold embargo and since that time the yen has steadily

FOREIGN EXCHANGE

depreciated and at the beginning of December, 1932, was quoted at 40 per cent of its par value. The depreciation reflects partly the unfavorable balance of payments of the country but particularly the definite desire of the government to reduce the heavy debt burden from which the farm population is suffering through inflation. It is felt by some of the leading statesmen in Japan that the depreciation of the yen will bring about a substantial rise in commodity prices and that this in turn will enable the heavily indebted farmers to liquidate their obligations. The gold resources of the Imperial Bank of Japan have further declined and at the middle of November amounted to \$214,000,000 as compared with \$234,000,000 at the beginning of 1932.

Other Countries.—Currencies of the other Far Eastern countries, notably the Indian rupee, the Straits Settlement dollar, the Australian pound and the New Zealand pound have

moved more or less in unison with the pound sterling. Since the Australian pound is selling at a discount of 25 per cent in relation to the British pound, the quotation of the Australian currency in New York at the middle of December was \$2.56.

SOUTH AMERICAN CURRENCIES

The gold standard is non-existent in South America, and the currencies of these countries are either legally or technically paper currencies. In spite of this fact, the principal South American currencies remained comparatively stable as a result of rigid foreign exchange control. However, in most countries local currency was quoted in the bootleg market at a substantial discount from the "official" rate. In Chile, for example, the bootleg rate for the peso is reported to be about 2 cents, as compared with the official rate of 6 cents. The following table shows the movement of the principal South American exchanges in 1932:

EXCHANGE RATES FOR SOUTH AMERICAN CURRENCIES

(Monthly averages of noon-buying rates for cable transfers in New York;
in cents per unit of foreign currency)

Country Monetary Unit	Argentina (Peso)	Brazil (Milreis)	Chile (Peso)	Colombia (Peso)	Uruguay (Peso)
Par value.....	96.48	11.96	12.17	97.33	103.42
1932:					
January.....	58.27	6.16	12.05	95.67	44.92
February.....	58.22	6.17	12.05	95.24	46.15
March.....	58.29	6.21	12.06	95.24	47.08
April.....	58.22	6.54	10.65	95.24	47.32
May.....	58.32	7.13	6.00	95.24	47.54
June.....	58.52	7.50	6.02	95.24	47.21
July.....	58.56	7.60	6.03	95.24	47.57
August.....	58.57	7.62	6.03	95.24	47.44
September.....	58.59	7.62	6.04	95.24	47.39
October.....	58.58	7.62	6.03	95.24	47.35
November.....	58.58	7.63	6.03	.....	47.34

THE CANADIAN DOLLAR

Since the imposition of restrictions on the exportation of gold the Canadian dollar has fluctuated at considerably below its par value. During the first ten months of 1932 the movement was within a narrow range and in the latter half of 1932

there was a rising tendency. In November, however, the Canadian government issued \$35,000,000 of 4 per cent Treasury Bills which were bought by the banks on book credits and which it is intended shall be used by the banks as collateral for advances of Dominion notes under

X. BUSINESS AND FINANCE

the Finance Act of 1923. This was interpreted as an inflationary operation and, coupled with the weakness of the pound sterling, resulted in a considerable decline in the value of the Canadian dollar. The movement of the Canadian dollar during November may be seen from the figures in the next column:

MOVEMENT OF CANADIAN DOLLAR NOVEMBER, 1932

(Noon-buying rates for cable transfers in New York; in cents per Canadian dollar)

Par value.....	100.00
November 2.....	90.82
7.....	86.68
11.....	88.93
16.....	87.61
21.....	86.64
25.....	85.26
30.....	84.47

LIFE INSURANCE

BY WENDELL M. STRONG

ASSOCIATE ACTUARY, MUTUAL LIFE INSURANCE COMPANY OF NEW YORK

GENERAL

For the first time in half a century life insurance has gone backward in respect to growth rather than forward. This has come from the decrease of over 15% in the amount of new business written and the great increase in surrenders and lapses. It is the surrenders in particular which are the cause of the recession, since the decrease in new business and the lapses alone would not be sufficient to cause such a result. These lapses and surrenders are undoubtedly mostly the result of financial necessity, not of lack of confidence, on the part of policy-holders, for nearly all com-

panies still remain of unquestioned financial strength. It is probable that notwithstanding this decrease the assets at the end of the year will show some increase over the previous year. In the last depression comparable with the present, that of 1893, policies in general did not have cash surrender and loan values. For that reason the loans that lead to terminations and the surrenders for cash did not then exist in any great degree, so that the chief cause of the present backward movement in amount of insurance in force was then lacking. During that depression the amount of insurance in force increased each year.

NEW INSURANCE

(Association of Life Insurance Presidents)
(44 companies having 81% of insurance in force in all U. S. companies)
(Dollars in millions)

First Ten Months of Each Year

	1930	1931	Per Cent Decrease	1932	Per Cent Decrease
Ordinary.....	\$7,172	\$6,150	14.2	\$5,031	18.2
Industrial.....	2,414	2,305	4.5	2,137	7.3
Group.....	902	666	26.1	523	21.5
Total Insurance.....	10,488	9,121	13.0	7,691	15.7

SURRENDERS AND LOANS

(N. Y. Insurance Report)
(Companies reporting to the State of New York)
(dollars in millions)

Year	Number of Companies	Amount in Force (End of Year)	Amount of Policies Surrendered*	Paid-for Surrendered Policies	Policy Loans (End of Year)
1931.....	52	\$74,636	\$2,264	\$718	\$2,798
1930.....	52	73,568	1,710	517	2,337
1929.....	49	69,886	1,370	375	1,992
1928.....	48	64,367	1,134	307	1,663
1927.....	48	58,649	1,072	268	1,484

* Includes group insurance but not industrial.

LIFE INSURANCE

NEW BUSINESS

It cannot be too often repeated that a decrease in new business does not mean to life insurance companies, as it does to most kinds of business, a financial loss. On the other hand, terminations in large numbers do mean some financial loss. First, if normal growth is to be maintained, the expense of replacing terminated policies with new business must be incurred. Secondly, the vast and increased amounts which have been and seem likely to be required from the companies for surrenders and policy loans require the keeping on hand, in the form of cash or extremely liquid securities, of an amount sufficient to meet all probable calls, and this requirement means a loss in interest as compared with normal investment. Again there is a further loss—for a time like the present is particularly favorable for making investments, and the great demand for cash from the companies, in the form of surrenders and increased policy loans, leaves very little money over with which to seize these opportunities.

In order to appreciate the position of life insurance companies in a period of business depression such as that which has now endured for several years, one of the fundamental characteristics of life insurance must be recalled. This is that if new business were cut off entirely, other things

being equal, a company could still continue functioning until the last policy had terminated since present reserves and future renewal premiums would provide for the company's obligations. In other words, unlike any commercial or manufacturing corporation, it is not dependent for continuance in the immediate future or for solvency upon continued receipt of additional business. Thus while such a corporation must have orders for its goods or else experience a tremendous annual loss that threatens its stockholders with the entire loss of all that they have at stake, a life insurance company can cease doing new business without loss of safety to its policyholders.

The year 1930 showed a slight decrease in new business; 1931 a considerable decrease from 1930, and 1932 is showing a very material decrease from 1931. The decreases are distributed unevenly, those in ordinary insurance being large and those in industrial insurance being comparatively small, which is contrary to what might naturally have been expected. In group insurance the decrease in new business is the largest of all, being over twenty per cent. This is in accordance with what might be expected since corporations generally are not in a position to undertake new obligations largely for the benefit of their employees.

AMOUNT OF INSURANCE—ASSETS—INCOME—DISBURSEMENTS

Including Ordinary, Industrial and Group Business

(*Insurance Year Book*)

(dollars in millions)

ALL UNITED STATES COMPANIES:

Year	Number of Companies	New Business	Amount in Force (End of Year)	Admitted Assets (End of Year)	Surplus* (End of Year)	Total Income	Total Disbursements
1931.....	342	\$17,226	\$108,886	\$20,160	\$1,858	\$4,850	\$3,538
1930.....	352	19,020	107,948	18,880	1,825	4,594	3,199
1929.....	353	19,267	103,146	17,482	1,767	4,337	2,882
1928.....	331	18,674	95,206	16,961	1,678	4,088	2,548
1927.....	319	17,135	87,022	14,392	1,537	3,673	2,295
1926.....	322	16,461	79,644	12,940	1,364	3,330	2,124

* Includes amount set apart for dividends to policyholders during following year.

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PAYMENTS TO POLICYHOLDERS—INTEREST RATE

Including Ordinary, Industrial, and Group Business
(Insurance Year Book)
(dollars in millions)

ALL UNITED STATES COMPANIES:

100
COMPANIES:

Year	Number of Companies	Premiums Received	Dividends Paid	Death Losses Paid	Surrenders and Lapses	Total Payments to Policy- holders	Rate of Interest on Mean Invested Funds
1931.....	342	\$3,661	\$585	\$915	\$861	\$2,607	5.23%
1930.....	352	3,524	554	856	614	2,247	5.31
1929.....	353	3,350	513	808	443	1,962	5.33
1928.....	331	3,146	466	706	369	1,699	5.30
1927.....	319	2,874	418	614	325	1,500	5.32
1926.....	322	2,624	376	569	283	1,373	5.29

BUSINESS IN FORCE

In insurance in force there has been every year for more than a generation an increase. The year 1931 showed a very slight increase over the preceding year; the year 1932 will undoubtedly show a considerable decrease when final figures are available. While this is contributed to by the decrease in new business written, the real cause is the business terminated under financial pressure by lapse or surrender.

ASSETS

The assets of the companies have continued to increase during the year but at a much slower rate than formerly. The cause of the slowing up is again principally the terminations rather than the decrease in new business, for new business written in the year adds only a part of the one premium paid whereas a surrender for cash value subtracts directly from the assets whatever that value may be, amounting on the average to several annual premiums.

INCREASE IN POLICY LOANS

Policy loans have been continually increasing. They are to be deprecated because in a great proportion of cases the policyholder who borrows on his policy never gets to the point of paying back the loan so that eventually if any financial emergency occurs, he is confronted with paying not only his premium but also interest on his loan and finds the burden such that the policy has to be surrendered. Thus loans are regarded in life companies usually as deferred surrenders and,

if avoidable, are to the disadvantage of both the policyholders and the company.

In the year 1931 the increase in policy loans was very great. In the year 1932 it will probably be even greater although modified by the fact that many heavily loaned policies were surrendered. In many companies this increase in policy loans has been so great as to take up all or more than the increase in assets during the year. The increase in loans that has occurred may be regarded as a portent of heavy termination for years to come.

MORTALITY AND DISABILITY EXPERIENCE

Insurance mortality for a period of several years ending about five years ago was unprecedentedly low. Since then there has been a very considerable increase, part of it due to suicide; some also is due to the fact that there is less recently issued insurance on the books, which always has a low mortality. These two causes together do not, however, fully explain the change. The year 1932 has probably followed pretty closely in the footsteps of 1931.

The experience of the companies with provisions for disability benefits has been increasingly bad, being the worst of all years in 1932. Many companies have discontinued entirely writing such business except in the restricted form of Waiver of Premium; others have continued a disability income benefit for half the former amount in a more restricted form, and a few have continued the

same provisions as formerly. Higher premiums for these benefits are universal. While the losses from past business will continue for some years to come, nothing new is now being written which will in the future be likely to contribute to such losses.

INVESTMENTS

Classification of Assets.—The assets of the companies are chiefly in three classes of securities:—bonds, mortgage loans on real estate, and policy loans, although there is a slowly growing fourth class, still small in most companies, namely, preferred stocks. Of these, policy loans need not be considered here since they are an offset to the company's liability on surrender or maturity of a policy.

Bonds.—During the year the security of all bond investments has been called in question as never before. There have been defaults on bonds which a few years ago were supposed to be entirely secure, and more defaults are in prospect. The companies cannot escape losses in their bond investments. At the same time most of them have tried to invest with extreme conservatism so that the so-called speculative bonds, which are notably the ones that have suffered, are held but little, if at all, by the life companies. They do hold many railroad bonds, but these are largely the underlying liens, and even if the railroad situation becomes as bad as the most pessimistic think possible, the values of most such bonds will not become seriously impaired.

Mortgages.—The general mortgage situation has been and is bad. Life companies have very many mortgages. In all of the better managed companies, however, mortgages have been taken on a conservative basis, both as to the value and the kind of property on which loans have been made. The amount of mortgage foreclosures necessarily has been considerable in the past year, and unless there is an unexpected quick recovery in business will be larger. In view, however, of the conservatism of the loans that have been made, it is probable that the companies will escape eventually with comparatively small

losses, unless the situation becomes much worse than it is at the end of 1932.

GENERAL FINANCIAL SITUATION

The newspapers have reported totals of loans to insurance companies by the Reconstruction Finance Corporation and some have believed that large amounts of these loans have been made to life insurance companies. This is not so. While exact figures are not obtainable, it is known that total loans to life insurance companies are small and that only a few companies have borrowed. The larger and stronger companies have had no need to borrow and presumably will not have. The occasion for the borrowing that has occurred has been the demand for cash for surrender values and policy loans. This demand for cash could continue unabated for a very long time without requiring from many companies even the liquidation of any securities except possibly United States Government bonds or other readily marketable high grade securities held for the purpose of being available in such a contingency.

The demands for cash for loans and surrender values, however, have had a very great effect in a different way, namely, in keeping the companies from having much money to invest in securities at a time when the opportunities for investment are exceptional, as has been said above. This condition has affected not only the companies and those insured in them, but also the whole financial situation in that a great demand for high grade bonds is temporarily largely withdrawn, resulting undoubtedly in prices for such securities lower than would otherwise occur.

The confidence that the public has had in the safety of life insurance has been demonstrated to be well founded by the experience of the companies for the past three years and by their present position, the losses mentioned above, from securities and mortgages, going rather to the question of what dividends will be paid on policies for the immediate future than to any question of solvency. The fact that one old and well regarded Middle

X. BUSINESS AND FINANCE

Western company has been placed in the hands of a receiver does not mean anything with regard to other companies since that was due to peculiar conditions affecting that one company only.

DIVIDENDS

In 1931 there were some decreases in dividends to policyholders but most companies held to the scales of 1930. In 1932 there were many decreases and few increases, but also many retained the same scale. In 1933 decreases will be the rule and few companies will continue the same scale. There will be practically no increases. The dividends paid are still substantial in nearly all participating companies. The surprising thing is not that there have been decreases but that the decreases have not been greater than those which have taken place.

ANNUITIES

One of the striking features of the year has been the great increase in the amount of annuities issued. This is evidence of the confidence which

the general public has in life insurance companies and also of the increased desire to secure an income which they believe will be safe even in times of acute financial stress. There is a similar phenomenon appearing in connection with insurance policies. These policies provide for optional modes of settlement to take the place of payment of the proceeds at the death of the insured in a single sum, such settlements consisting of holding the proceeds at interest during the lifetime of the beneficiary or of paying the proceeds in instalments or by an annuity. Up to the last decade very little advantage was taken of these options but since its beginning there has been a rapid growth in the election of such settlements by the insured. This growth is very noticeable in the difficult year of 1932, which is a further indication of confidence in the companies and the desire of policyholders to have the companies not only insure their own lives but also insure their beneficiaries against loss of the proceeds through unwise or unfortunate investments.

INDUSTRIAL INSURANCE

(Insurance Year Book)

(dollars in millions)

ALL U. S. INDUSTRIAL COMPANIES

Year	Number of Companies	Number of Policies (in millions)	New Business	Amount in Force (End of Year)	Amount Terminated by Death	Amount Terminated by Surrender and Lapse	Total Amount Terminated
1931.....	68	88	\$4,847	\$18,274	\$159	\$4,412	\$4,781
1930.....	69	89	4,860	18,287	158	4,101	4,490
1929.....	68	89	3,738	17,902	...	.....	.....
1928.....	65	86	4,505	16,686	...	.....	.....
1927.....	58	82	4,464	15,548	...	.....	.....
1926.....	49	76	4,048	14,187	...	.....	.....

INDUSTRIAL INSURANCE

Industrial insurance remained practically stationary with regard to new business and amount in force in 1931, and the decrease in 1932 mentioned above is relatively much less than the decrease in other classes of insurance. The figures on terminations of industrial insurance in the table above may be compared with those for ordinary insurance (excluding group) for 1931 which are:

(In millions)

Amount Terminated by Death.....	\$ 732
Amount Terminated by Surrender and Lapse	7,657
Total Amount Terminated.....	10,113

This comparison shows the large waste due to surrendering or lapsing industrial insurance, a waste over two and one-half times greater than for ordinary insurance and a waste that increased somewhat in 1931.

FIRE INSURANCE

FRATERNAL INSURANCE

The table following shows recent changes in various items of fraternal insurance. Fraternal orders lost

greatly in new business and amount of insurance in force in 1931. For 1932 the figures are not yet available.

FRATERNAL INSURANCE

(Insurance Year Book)

(All U. S. fraternal orders showing figures)

(dollars in millions)

Year	Number of Orders	New Business	Amount in Force (End of Year)	Assets (End of Year)	Total Income	Total Disbursements	Assessments	Claims Paid
1931.....	242	\$ 671	\$7,301	\$895	\$236	\$207	\$185	\$132
1930.....	255	1,287	8,946	882	251	199	199	147
1929.....	269	984	9,155	834	258	201	200	154
1928.....	262	1,040	9,324	824	245	182	197	140
1927.....	235	1,025	9,727	760	238	171	193	173
1926.....	249	1,033	9,835	660	224	159	182	121

FIRE INSURANCE

BY EDWARD R. HARDY

SECRETARY-TREASURER, INSURANCE INSTITUTE OF AMERICA

PREMIUMS WRITTEN AND LOSSES PAID

Considering the critical period through which all business, including fire insurance, is passing, the best method of presenting present condi-

tions is to set forth the statistics for the years 1929 to 1931 inclusive. These are taken from the Fire Insurance Policyholders Pocket Index of the Spectator Company. They are given in millions and are as follows:

Class	Premiums Written			Losses Paid			Ratio (%)		
	1929	1930	1931	1929	1930	1931	1929	1930	1931
Fire.....	\$725	\$648	\$574	\$336	\$365	\$339	46	56	59
Ocean Marine.....	39	37	31	25	23	18	63	63	59
Motor Vehicle.....	105	93	81	45	51	49	43	55	60
Earthquake.....	2	2	2	..	..	..	.1	.3	.3
Inland Marine.....	42	43	39	18	22	20	44	50	52
Tornado.....	44	41	37	15	12	5	34	30	15
Hail.....	13	6	5	5	6	2	37	59	38
Sprinkler Leakage.....	2	2	1	1	1	.5	34	44	38
Riot, etc.....	4	4	3	1	1	1	37	31	35
Aircraft.....	....	1	1	....	1	1	..	79	99

In fire insurance the premiums written decreased \$77,000,000, or 11%, in 1930 and \$151,000,000, or 21%, in 1931, as compared with the 1929 figures. The losses paid increased \$29,000,000, or 9%, in 1930, but only \$3,000,000, or about 1%, in 1931, as compared with the 1929 figures. For 1932 the premiums written show a decrease of approximately 10% from the 1931 figures. The losses paid will probably not exceed those of 1931 and

may even show a decrease, provided no unusual conflagration occurs.

CAPITAL REDUCTION

One outstanding feature of the business this year has been the reduction in capital in the case of several of the companies. The reduced amount of business written and the lower values generally applying make it possible to do this. It is also a way of strengthening the surplus without raising fresh capital.

X. BUSINESS AND FINANCE

MARINE INSURANCE

By DOUGLAS F. COX

PRESIDENT, APPLETON & COX, INC.

GENERAL

Premiums.—So far as figures are concerned, we are obliged to deal with those of 1931, as those of the current year will not be published in available form until the summer of 1933. Dealing with 1931, therefore, we find that the total Ocean Marine premiums amounted to \$36,218,000 compared with \$44,036,000 in 1930, showing a decrease of \$7,818,000, the total Inland Marine premiums being \$42,429,000 which, compared with \$46,629,000 in 1930, shows a decrease of \$4,200,000.

The Loss Ratio on the Ocean business, as shown by the published figures, was \$58.09 per cent, as against 62.41 per cent in 1930. On the Inland business, the Loss Ratio was 50.31 as against 49.46 in 1930.

Decrease in Companies.—The question of the number of companies doing the business is always interesting, as it has a distinct bearing on the general trend in relation to the possibilities of profit. It appears that there was again an increase in the total number of companies in the business, namely, 221 in 1931, as against 211 in 1930. This increase in the number of companies competing for a business which, at the present time, is materially decreased in volume, indicates that it is increasingly difficult for any company to show profitable results.

Inland Premiums.—It is evidently the Inland business that is attracting the attention of additional companies, as the number doing Ocean business was less in 1931 than it was in 1930. It might be mentioned that practically every fire insurance company either is authorized to do marine insurance or can easily obtain that authority from the state. Following is a tabulation covering the last three years; in 1927, the total number of companies in the business was only 132:

	Ocean Only	Inland Only	Both	Total
1929.....	5	72	109	186
1930.....	7	81	123	211
1931.....	3	107	111	221

THE CURRENT OUTLOOK

Premium Factors.—Although no figures are available, it seems inevitable that the volume of premium in both classes will again show a material decrease. A large proportion of the vessels of all countries are laid up for want of employment, both in cargo and passenger traffic, and the movement of merchandise overseas is at an extremely low ebb on account of the world-wide depression and the high tariffs and other restrictions which now hamper world trade. All of these factors must affect the volume of Ocean Marine premium. As to Inland Marine, it must likewise feel the adverse effect of the shrinkage in movement of merchandise, moreover, many of the Personal Property Floater Policies, which are included in that class, cover articles of luxury such as jewelry, furs, &c., and under present circumstances such articles are not so much in evidence.

Loss Factors.—Aggregate figures as to losses are not yet available but it would seem that they have been quite numerous and costly in both classes. Fires on shipboard and on piers have been frequent and storms have been numerous and severe in many parts of the world, the hurricane season in the West Indies having been unusually destructive to shipping and to merchandise on shore awaiting shipment. Within the United States, losses by theft of merchandise in transit by motor truck and on jewelry and other valuables covered under Floater Policies have been continuous, as is to be expected under the lawless conditions generally prevailing.

INLAND MARINE UNDERWRITERS ASSOCIATION

This organization has been mentioned in two previous reviews as be-

CASUALTY AND MISCELLANEOUS INSURANCE

ing in process of voluntary formation by the companies to stabilize conditions in the most important of the classes of Floater policies, covering jewelry, furs, fine arts, etc. This has been an eminently constructive effort and the Association seems now to be quite firmly established. The intention is to extend its jurisdiction gradually to include other classes.

OVERLAPPING OF POWERS

Last year it was mentioned that the New York Insurance Department had started a movement to determine by agreement and ruling what forms of cover should be issued by companies

under their marine powers as defined by law and what forms should be issued under Fire and Casualty powers, much dispute having arisen between the three classes of companies in regard to various forms that are popular with the public. Considerable progress has been made and the Department has now promulgated a ruling which deals with many of the disputed points. The work will be continued and it is hoped that in time most of the confusion will be eliminated in New York, with the possibility that this desirable consummation may also be reached in the other states.

CASUALTY AND MISCELLANEOUS INSURANCE

By A. DUNCAN REID

PRESIDENT, GLOBE INDEMNITY COMPANY

GENERAL

A review of casualty and miscellaneous insurance under prevailing conditions must necessarily be a recitation of facts and experiences most distressing and painful. Through all the dark clouds "which lately lowered upon our house," the sun of understanding and appreciation has sent its penetrating and encouraging rays. For that fact, all interested in insurance are truly grateful. That ray of light has disclosed to the whole world that in spite of all the stress and storm, the house of insurance still stands upon its firm foundation.

Customers, agents and companies have all come to a better understanding of the real service rendered by insurance and the real and solid need for knowledge and good business sense in the operation of the entire industry. With this as a heritage out of the past we may face the future with optimism and courage, albeit with no misgivings concerning the strenuous requirements to be met.

Perhaps the most outstanding development in a general way was the materialization into definite action

of the spirit of cooperation. To a point never before reached, the forces of company, agency, state official and customer have rallied into conference and into concerted action on the basic and important details necessary for improvement and more actual and practical protection. Because of this cooperative willingness, progress is more promising than ever before.

To those who really understood and appreciated the working of the economic forces, the tremendous losses suffered by companies in 1931 in almost every line of coverage came as no surprise. Nor did these same people deceive themselves into believing that 1932 could or would show an improvement. All this is true in spite of certain rate changes which became effective as a result of the crisis which had existed.

COMPENSATION INSURANCE

In compensation insurance, the company-agency conference held in the fall of 1930 was the beginning of a cooperative march towards improvement. The revamping of the rate situation which followed was neither creative nor effective as a

loss stop, because the forces of the economic world moved faster than the cure. Wage reductions, part-time employment, increases in both the number and size of claims, the continued upward trend of medical cost, the burden of unemployment in whole or in part, the increase in occupational disease cases, and the more liberal interpretation of compensation laws, all combined to produce a dollar outgo far above the level of dollar income as set up by existing rates. On January 1, 1931, again the same rate increase process was set into motion and the same counter offsetting results in claim cost destroyed the happy ending.

In mid-year, 1932, again we saw the rate revision processes at work. Another attempt to catch up with the loss factor was made. In this 1932 effort we saw once again, as in 1930, an attempt to adjust cost factors to fit the larger risks. This effort involved a proposal to introduce reduced commission rates, as well as reduced administrative cost, all to be reflected in the premium charge made to the large risk. In the course of these discussions, many plans were proposed, including the now discarded retrospective plan. At this writing, no conclusion has been reached in the large portion of the territory involved, and the future only can write the final answer.

Through it all and over it all, one thought predominated in the minds of agents, state officials and companies; that was, the tremendous loss due to the compensation insurance underwriting must stop. Companies, members of the National Bureau of Casualty and Surety Underwriters, suffered an underwriting loss in 1931 of \$23,262,132. No wonder the National Convention of Insurance Commissioners, meeting in Chicago on June 23, 1932, said: "The public interest requires that rates be adequate so as to preserve the solvency of the companies and insure their ability to pay the compensation due to injured workmen and to the widows and orphans of those killed in industry." Not alone must the loss stop, but by some method and by

the application of adequate rates charged, the compensation insurance line must be made marketable.

AUTOMOBILE LIABILITY INSURANCE

The story of automobile insurance is much the same. The mounting death and accident toll, the liberality of juries, the rising cost per claim, the increase in the number of claims for accident notices, the increased number of cars in operation, the increased mileage traveled per year by cars in use, and many other factors, not forgetting, of course, the unemployment and economic stress, all serve to destroy the possibility of underwriting profit and to make existing rates wholly inadequate. Rate increases became necessary and when made, received in general the cooperation of agents as well as of state officials. Unfortunately, the necessity to increase automobile liability insurance rates in the face of lowering cost in almost every other department of purchase, produced a resistance which was most difficult to meet.

Again, everyone who studies and knows the facts will agree that the loss must stop. The companies reporting to the New York Department of Insurance in 1931 show a \$13,000,000 underwriting loss on automobile liability insurance, this loss on an earned premium of \$201,000,000. Adequate rates must be made and must be collected in order to stem the tide of future deficit.

FIDELITY AND SURETY LINES

In fidelity and surety lines there has come an improvement as compared with 1931. Still, money in large sums has been going out but generally there may be encouragement growing out of the fact that more and better underwriting is being done, and less carelessness shown in the acceptance of the financial guarantees. The troubles of the past can produce, and in fact already have produced, some reformation in the methods used in underwriting these important lines of coverage. It is hoped that out of this situation

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will grow a change of practice with respect to many of the lines which have been productive of a very heavy loss.

ACCIDENT AND HEALTH INSURANCE

Accident and health insurance in 1932 saw the beginning of the real operation of the reformed policy forms and rates and they are today in general use by the majority of the responsible companies. The best minds of the accident and health world worked unselfishly and intelligently on that most difficult problem. There is much ground for hope for a considerable betterment in the results from an underwriting standpoint to be accomplished without loss of practical coverage or service to the assured.

BURGLARY INSURANCE

Burglary insurance in certain of its forms has felt the reaction from the conditions in the business world. Losses, in frequency and size, have increased in certain communities tremendously, but so far there has been no disastrous result, and it is hoped that this line will become one in greater demand and in more universal use than ever before.

PLATE GLASS INSURANCE

Plate glass insurance has rapidly moved into the position of a more interesting line because of the improvement in the general methods of rating and service. The struggle is

still on between the so-called "fifty-fifty" advocates and the full coverage writers, but it would seem from past history that this line perhaps may be included with those in the optimistic field.

THE FINANCIAL SITUATION

The financial picture, which has been so sad for so long, has during 1932 shown some improvement. In June, 1932, the Convention of Insurance Commissioners attacked the financial question with courage and intelligence to the satisfaction and benefit of the industry as a whole. No improvement in the valuation of the investment portfolio can be expected to be either radical or rapid. No longer can the investment profit take the place of underwriting gain, and perhaps it is best so. The most anyone can expect or perhaps hope for now is that matters financially will not grow worse. The action of many companies during the year, in transferring dollars of capital to surplus, was the subject of much comment,—very little of that comment adverse. Without doubt the move was not only sane in most cases but one which made for greater flexibility and soundness of protection. That in itself was worth while. 1932 has made better insurance men, and better business men. It has developed strength of purpose in the right direction, which after all may be accepted as the basis for optimism no matter what troublesome problems the future may develop.

CHRONOLOGY OF FINANCIAL EVENTS, 1932

(From *The New York Times*, January 3, 1933)

JANUARY

Jan. 2—Year begins with fall in stocks.
Jan. 7—Steel output 24 per cent of capacity, against 21 in December.
Jan. 8—St. Louis-San Francisco defers preferred stock dividend.
Jan. 9—German Chancellor Bruening declares Germany can no longer pay reparations.

Jan. 10—Conference begun between management committee and the Railway Labor Executives' Association on proposal to reduce union wages by 10 per cent for one year.
Jan. 14—Steel output 25 per cent.
Jan. 15—\$50,000,000 three-months' Treasury bills draw tenders of \$169,337,000; average rate $2\frac{7}{8}$ per cent.

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Jan. 16—Franc rises above gold export point. Bank of France starts to withdraw earmarked gold, but makes fresh earmarkings to replace withdrawals.

Jan. 19—Joseph B. Eastman of Interstate Commerce Commission, urges retroactive repeal of recapture clause in Transportation Act.

Jan. 21—Steel output 28 per cent.

Jan. 22—Congress passed \$2,000,000,-000 Reconstruction Finance Corporation Act. Dawes and Meyer to head company.

Jan. 24—Death of Paul Warburg.

Jan. 25—Railroad Credit Corporation organizes to distribute proceeds of freight surcharges effective Jan. 2 in loans to needy railroads.

Jan. 27—United States Steel Corporation reduces common dividend from \$1 quarterly to 50 cents quarterly; reports deficit, after all dividends, of \$49,165,485 for 1931, against surplus of \$18,836,097 for 1930.

Jan. 28—Steel output 29 per cent.

Jan. 30—Railway wage conference results in agreement on 10 per cent reduction for one year from Feb. 1.

FEBRUARY

Feb. 1—Bank of England pays \$75,000,000 to Federal Reserve Banks, remainder of \$125,000,000 credit secured Aug. 1, 1931.

Feb. 3—General Motors Corporation reduces common dividend from 75 cents quarterly to 50 cents.

Feb. 4—Steel output 28 per cent.

Feb. 10—Glass-Steagall bill to admit United States bonds as collateral for Federal Reserve notes introduced, with administration's approval. Estimated would set free \$1,000,000,000 Federal Reserve gold.

Feb. 11—Steel output 28 per cent, unchanged.

Feb. 17—London brokers pay 30 shillings, British currency, for gold sovereigns worth 20 shillings, gold. Estimated nearly \$1,000,000 sold.

Feb. 18—Bank of England cuts rate from 6 per cent to 5; first change since gold suspension in September, 1931. New York Stock Exchange brokers required by Exchange to

obtain separate authorization from customers for lending shares to short interest.

Feb. 20—Heavy selling of gold trinkets and ornaments at London for premium of 37 per cent paid in British currency. Estimated, probably with exaggeration, \$50,000,000 sold.

Feb. 24—Railroad Credit Corporation makes first loan to Pittsburgh & West Virginia. \$60,000,000 of Treasury bills issued to refund maturing bills. Federal Reserve begins purchase of United States bonds at approximately \$25,000,000 a week.

Feb. 25—New York Federal Reserve Bank cuts rate from $3\frac{1}{2}$ per cent to 3. Steel output 26 per cent.

Feb. 26—Gold sales by India for premium in British currency immensely large.

Feb. 27—Glass-Steagall bill signed by President. Hoarded money begins to return.

MARCH

March 3—Steel output 26 per cent, unchanged.

March 4—\$100,000,000 Reichsbank credit renewed in amount of \$90,000,000 for three months by Federal Reserve Banks, Bank of France, Bank of England and Bank for International Settlements. British Treasury pays off and cancels \$150,000,000 of \$200,000,000 credit obtained from banking syndicate Aug. 28, 1931.

March 7—Sales tax bill introduced in H. R. Treasury offers 2 per cent one-year "anti-hoarding" U. S. bonds.

March 9—Reichsbank rate cut from 7 per cent to 6.

March 10—Bank of England cuts rate from 5 per cent to 4. Steel output 27 per cent.

March 12—Ivar Kreuger a suicide at Paris. Great fall in Kreuger shares; Kreuger & Toll bonds at Paris broke from $147\frac{1}{2}$ to 50.

March 15—Treasury offers one-year $3\frac{3}{4}$ per cent certificates of indebtedness. Subscriptions, \$2,451,000,-000; \$661,000,000 were allotted. Offering of seven months' $3\frac{1}{8}$ per

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- cent certificates of indebtedness subscribed \$953,000,000; \$333,000,000 were allotted.
- March 17—Bank of England cuts rate 4 per cent to $3\frac{1}{2}$. Steel output 25 per cent.
- March 24—Revolt in House of Representatives against the sales tax. Soldiers' bonus bill pressed. Steel output unchanged.
- March 29—British Treasury repays \$30,000,000 of banking credit.
- March 31—R. F. C. loans aggregate \$235,000,000. Steel output 22 per cent.
- APRIL**
- April 1—Tax bill passed by H. R. Australian Commonwealth paid s. a. interest defaulted by New South Wales.
- April 6—Federal Reserve open-market purchases of United States Government securities, which had been at the rate of \$25,000,000 a week since Feb. 24, increased to a rate of \$100,000,000 weekly.
- April 7—Attack on soundness of the dollar by Paris newspapers. Bank of France expresses confidence. French and Dutch exchange rise above gold-export point at New York. Steel output 22%.
- April 9—Reichsbank rate cut from 6% to $5\frac{1}{2}$.
- April 11—Swiss franc goes above gold-export point.
- April 12—Berlin Boerse reopens after closure since Sept. 12; prices about 12% below closing Autumn figure.
- April 13—\$75,000,000 three-months' Treasury bills placed at 0.62%; tenders, \$289,740,000.
- April 14—Southern Pacific takes control of St. Louis Southwestern by acquiring 80% of capital stock. Steel output 21%.
- April 15—Receivers appointed for Middle West Utilities Company and three subsidiaries, followed by receivership for Insull finance companies.
- April 16—Pennsylvania, Baltimore & Ohio and Chesapeake & Ohio file joint brief with Interstate Commerce Commission for four-trunk-line consolidation.
- April 18—British Exchequer announces plan of £150,000,000 loan to accumulate foreign exchange and gold in order "to avoid violent and perilous fluctuations in the pound sterling."
- April 21—Bank of England reduces rate from $3\frac{1}{2}$ per cent to 3 per cent. Steel output $22\frac{1}{2}$ per cent.
- April 24—General Motors Corporation reports net profit of \$9,685,027 for the first quarter, against \$30,529,037 in first quarter of 1931.
- April 25—Treasury places \$225,000,000 one-year loan at 2 per cent, \$225,000,000 for 2 years at 3 per cent. Aggregate tenders \$4,196,296,700.
- April 26—Sterling falls to \$3.63, against \$3.82 at month's opening. New tariff put in effect by England, raising duties 10 and 20 per cent. United States Steel passes common dividend, but declares regular quarterly preferred dividend. Reports net loss of \$13,218,549 for the first quarter, against net profit of \$6,765,057 in first quarter of 1931.
- April 28—Reichsbank rate cut from $5\frac{1}{2}$ to 5 per cent; steel output, 23 per cent.
- MAY**
- May 2—H. R. Ways and Means Committee agrees to sales tax. Committee votes down \$2,000,000,000 bonus plan. Goldsborough bill instructing F. R. to restore 1929 prices through action on the currency passes House, 289 to 60.
- May 4—General Motors Corporation reduces quarterly common dividend from 50 cents a share to 25.
- May 5—Steel output 24 per cent.
- May 6—U. S. Steel reduces wages of its 200,000 employees 15 per cent, effective May 16. Leading independents follow.
- May 7—H. R. committee reports favorably on bill for retroactive repeal of recapture provisions of transportation act.
- May 12—Bank of England rate cut from 3 per cent to $2\frac{1}{2}$. Steel output 24 per cent.
- May 19—Governor Harrison of N. Y. Federal Reserve Bank announces

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formation of the "Young Committee" to help make Reserve easy-money policy effective. Steel output 25 per cent.

May 26—Steel output 24 per cent.

May 31—Panicky atmosphere in Wall Street over foreign assertions delaying in American budget is threatening soundness of the dollar. President Hoover appears personally before U. S. Senate, warning it that quick action is imperative.

JUNE

June 1—Senate passes revenue bill and adopts Glass bill making certain United States bonds eligible for basis of note circulation as substitute for H. R. Goldsborough bill.

June 2—Steel output 23 per cent.

June 4—Bankers form \$100,000,000 "bond pool," the American Securities Investing Corporation, under the leadership of J. P. Morgan & Co.

June 6—Revenue bill becomes law; hopes expressed that it will cover deficit.

June 7—Stock Exchange specialists prohibited from accepting stock offered, or supplying stock wanted, until they have made an effort to obtain a better price in the open market than that named in their orders.

June 9—Steel output 20 per cent.

June 15—Gold outflow ends; foreign exchange moves in favor of United States. Offering of \$790,000,000 in one-year $1\frac{1}{2}$ per cent certificates and three-year 3 per cent Treasury notes four times oversubscribed.

June 16—Steel output 18 per cent.

June 23—Steel output 16 per cent.

June 24—Rediscount rate of Federal Reserve Bank of New York cut from 3 per cent to $2\frac{1}{2}$.

June 29—Issuance of \$100,000,000 of Treasury bills, at an average cost of 0.41 of 1 per cent.

June 30—British Government announces plan to convert £2,087,000,000 outstanding 5 per cent war loan to $3\frac{1}{2}$ per cent basis, allowing cash bonus of 1 per cent to holders assenting before July 31.

Bank of England rate cut from $2\frac{1}{2}$ per cent to 2. Standard Oil of New Jersey adopts forty-hour week for entire domestic staff. Steel output 15 per cent.

JULY

July 6—Steel output 12 per cent, a low record due to holiday shutdowns. June iron production smallest since December, 1896.

July 7—Eastern railroad presidents form committee to end destructive rate-cutting.

July 11—Receivers in bankruptcy appointed for National Electric Power, National Public Service and Seaboard Public Service.

July 13—Offering of \$75,000,000 of Treasury bills to refund maturing issues. Steel output 16 per cent.

July 16—Federal Reserve Banks slow down purchases of "government."

July 20—Offering of \$76,000,000 of Treasury bills to refund like amount of maturing issues. Steel output 16 per cent, unchanged.

July 21—Interstate Commerce Commission approves consolidation of Eastern railroads into four systems based on the New York Central, Pennsylvania, Baltimore & Ohio, Chesapeake & Ohio-Nickel Plate, ending proposed fifth trunk line projects. Hits Pennsylvania Railroad holdings in New England roads.

July 22—Copper abroad makes low record of 4.40 cents a pound c. i. f. Hamburg, Havre, London. Federal Home Loan Bank act approved, with provision extending the national bank note circulation privilege to all United States bonds carrying not more than 3% per cent interest.

July 24—General Motors Corporation reports net income of \$5,326,377 for the second quarter, equal to 7 cents a share, against net income of \$55,335,717, or \$1.22 a share for corresponding period of 1931.

July 25—Offering of \$325,000,000 two-year $2\frac{1}{8}$ per cent notes and \$325,000,000 four-year $3\frac{1}{4}$ per cent notes, both dated Aug. 1, to re-

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fund \$228,000,000 of certificates and to supply funds to Reconstruction Finance Corporation. The issues were eight times over-subscribed.

July 26—U. S. Steel Corporation declares regular preferred dividend; reports net loss of \$20,452,173 for the second quarter, against a net profit of \$7,391,355 for the second quarter of last year.

July 27—Offering of \$83,000,000 of Treasury bills to refund a like amount of maturing issues. Steel output 16 per cent, unchanged.

July 28—Bethlehem Steel Corporation passes quarterly preferred dividend; reports net loss of \$4,671,266 for the second quarter, against a net profit of \$1,452,743 in the second quarter of last year.

July 31—Conversion of £2,087,000,000 British 5 per cent war bonds reaches time limit of special offer; £1,850,000,000 accept exchange with bonus; balance to be redeemed in cash.

AUGUST

Aug. 3—Steel output 15 per cent.

Aug. 6—Interstate Commerce Commission grants Baltimore & Ohio permission for old 2½ cent passenger fare under certain conditions between New York and Washington.

Aug. 10—Association of Railway Executives hears report from Daniel Willard on proposal that railways borrow from Reconstruction Finance Corporation to provide employment. Offering of \$75,000,000 Treasury bills, issued to refund like amount of maturing bills. Steel output 14 per cent.

Aug. 12—Pennsylvania Railroad first carrier to apply for Reconstruction Finance Corporation loan to aid employment.

Aug. 17—Federal Reserve stops purchases of "governments." Holdings amount to \$1,851,000,000, a rise of \$1,110,000,000 since Feb. 24, and are kept virtually unchanged throughout remainder of the year. Steel output 14 per cent.

Aug. 18—Clearing House banks form

\$50,000,000 Commodities Finance Corporation.

Aug. 24—Offering of \$60,000,000 Treasury bills, issued to refund a like amount of maturing bills.

Aug. 26—Receivers appointed for Interborough Rapid Transit Company by Judge Manton.

Aug. 28—Imperial Conference in Ottawa agrees to recommend to British Parliament a preference tariff of 2 cents a pound on copper shipped into the United Kingdom.

Aug. 30—The equipment manufacturers organize a credit organization to aid purchases by railroads. Railroads appoint committee of nine to negotiate for further wage cuts. British Government announces further conversion of £153,222,000 of 4½ per cent bonds to 3½s.

Aug. 31—Stock Exchange to strike matured bond issues, including many in default, from its list Nov. 1. Offering of \$100,000,000 Treasury bills, issued to refund like amount of maturing bills. Steel output 13 per cent.

SEPTEMBER

Sept. 6—Receiver appointed for Manhattan Railway Company.

Sept. 7—National Association of Mutual Savings Banks form committee to investigate railroad problems. Steel output 14½ per cent.

Sept. 9—Directors of American Petroleum Institute recommend 40-hour a week schedules for the industry.

Sept. 14—Steel output 15½ per cent; more confidence in industry.

Sept. 15—Offering of \$834,000,000 five-year 3¼ per cent notes and \$451,000,000 one-year 1¼ per cent certificates. This in connection with a maturity of \$713,000,000 of certificates on Sept. 15.

Sept. 16—Soviet Government trades crude oil for aluminum wire in contract with Aluminum Company of Canada. Steel output 16 per cent.

Sept. 21—Railway Labor Executives Association meets management committee and declines group ne-

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- gotiation on 20 per cent reduction proposal.
- Sept. 22—Railway Labor Executives Association appeals to President Hoover in wage controversy. Reichsbank rate cut from 5 to 4 per cent.
- Sept. 23—Heads of New York Central, Pennsylvania, Baltimore & Ohio and Chesapeake & Ohio agree on four-trunk consolidation.
- Sept. 25—British trusts form central organization for protection against defaults in their investments.
- Sept. 26—President Hoover asks railroads to postpone wage move until end of the year.
- Sept. 27—National Transportation Committee sponsored by savings banks and insurance companies to investigate railroad problems announced. Calvin Coolidge to head committee. All directors of Middle West Utilities Company resign, receivers appointing heads of subsidiaries to board.
- Sept. 28—Offering of \$100,000,000 of 91-day bills to replace like amount maturing; average cost 0.23 of 1 per cent, a new low record. Steel output 17½ per cent, highest since June.
- Sept. 29—General Motors Corporation places office workers on a five-day week, compared with five and one-half days formerly.

OCTOBER

- Oct. 4—Samuel and Martin Insull indicted in Illinois.
- Oct. 5—Eighty railroad presidents meet in New York and agree to postpone move for wage reduction, meanwhile asking for continuation of prevailing 10 per cent cut beyond following Feb. 1. Steel output 18 per cent.
- Oct. 11—Issuance of \$75,000,000 Treasury bills to refund like maturing bills.
- Oct. 12—Steel output 19 per cent.
- Oct. 13—Judge Woolsey voids I. R. T. receivership on grounds Judge Manton acted without authority.
- Oct. 14—Stock Exchange call loans reduced from 2 per cent to 1 per cent; bankers' acceptances cut to ½ per cent discount, the lowest in

the history of the bill market; commercial paper rates cut to 1¾ @ 2 per cent.

- Oct. 15—Offering of \$450,000,000 3 per cent Treasury notes running 4½ years elicited \$8,050,181,000 total subscriptions; \$508,338,000 allotted.
- Oct. 18—Sterling, which had been held above \$3.45 for two months while the British loan conversion was being effected, was unpegged, falling to \$3.40½.
- Oct. 19—Steel output 19½ per cent.
- Oct. 20—United States Steel Corporation and other leading steel makers reduce price of steel rails \$3 a ton to \$40 a ton, first reduction in rails since Oct. 1, 1922.
- Oct. 21—General Motors reports net loss of \$4,464,229 for third quarter, against a net profit of \$13,333,214, or 25 cents a share on the common in the third quarter of 1931.
- Oct. 25—Offering of \$80,000,000 Treasury bills to refund a like amount of maturing bills. U. S. Steel Corporation declares regular preferred dividend; reports net loss of \$20,871,709 for the third quarter, against a net profit of \$3,187,131 for the corresponding period of 1931.
- Oct. 26—Sterling falls to \$3.27½. Steel output 19 per cent.
- Oct. 27—Bethlehem Steel reports net loss of \$5,425,724 for the third quarter, against net loss of \$1,502,002 for the corresponding period of 1931.

NOVEMBER

- Nov. 2—Steel output 20%.
- Nov. 7—Stock average rises 2½ points on eve of election, making 5½ in three days.
- Nov. 8—Franklin Roosevelt elected President of United States with plurality of 7,054,520 over Hoover, as against Hoover's plurality over Smith in 1928 of 6,423,614 and Coolidge's plurality over Davis of 7,338,513 in 1924.
- Nov. 9—Stock average down 2 points. Amster group wins control of Manhattan Railway by proxy contest and takes over company. Steel output 19½%.

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- Nov. 10—Continued recovery in stocks. U. S. Steel shows 11,950 tons increase in unfilled orders during October; third consecutive monthly increase.
- Nov. 14—First British note published, asking December debt moratorium. Sterling $\$3.34\frac{3}{8}$, against $\$3.28\frac{3}{4}$ at end of October. First French note also published.
- Nov. 15—Requests for December debt moratorium by Belgium and Poland. Offering of $\$75,000,000$ Treasury bills, to refund equivalent maturities.
- Nov. 16—Steel output 19%.
- Nov. 17—Sterling goes below $\$3.30$.
- Nov. 21—Consent decree issued by Federal court at Wilmington, Del., directs sale of Radio Corporation of America shares by General Electric and Westinghouse and ends exclusive patent licensing between these companies; Electric directors ordered to quit R. C. A. board.
- Nov. 22—President Hoover and President-elect Roosevelt confer at White House on war debt policy; result of conference shows December moratorium impossible.
- Nov. 23—United States Government Issue of $\$60,000,000$ Treasury bills to refund like amount of maturities.
- Nov. 28—Harry Guy Taylor appointed Commissioner of Western railroads.
- Nov. 26—Sterling $\$3.21\frac{1}{2}$.
- Nov. 29—Sterling reaches $\$3.14\frac{3}{8}$, a low record. United States offers $\$100,000,000$ Treasury bills, issued to refund a like amount of maturing issues.
- Nov. 30—Steel output 17%.
- Dec. 1—Sterling rises rapidly from $\$3.15\frac{1}{2}$ to $\$3.23\frac{3}{8}$; official assurances at London that Great Britain will pay war-debt instalment.
- Dec. 7—Domestic copper at 5 cents; a net all-time low. Sterling $\$3.25$. Circuit Court of Appeals reverses Judge Woolsey, confirming appointment of I. R. T. receivers by Judge Manton. Steel output 16 per cent.
- Dec. 10—United States Steel Corporation unfilled orders reports decrease of $\$28,739$ tons for November; first decline in four months.
- Dec. 13—Premier Herriot urgently advocates to French Chamber payment of debt instalment to United States; Chamber refuses assent to payment by vote of 380 to 57.
- Dec. 14—Franc falls to 3.90 cents, lowest since stabilization of French currency in 1928; gold exports from France to U. S. begin. Steel output 15 per cent.
- Dec. 15—Great Britain pays $\$95,550,000$ war-debt instalment in gold by arrangement with Federal Reserve Bank of New York, whereby the gold was placed at the disposal of the Bank of England here, in return for the earmarking in London of an equivalent amount for the account of N. Y. Federal Reserve Bank. Payment made by Reserve Bank in gold to U. S. on account of debt; gold resold to Reserve Bank and replaced by equivalent ordinary credit. In all, six European nations, headed by England, make stipulated payments; five, headed by France, default.
- Treasury's offer of $\$350,000,000$ four-year $2\frac{3}{4}$ per cent notes elicited $\$6,677,130,000$ subscriptions, nearly all cash; $\$360,533,900$ allotted. Offer of $\$250,000,000$ one-year certificates at three-fourths of 1 per cent elicited tenders of $\$4,128,931,000$, all but $\$191,617,000$ representing cash and $\$254,364,500$ being allotted.
- Dec. 17—Sterling touches $\$3.31\frac{1}{2}$.
- Dec. 20—Agricultural Department estimates plantings for new Winter wheat crop at $\$39,902,000$ acres, against 40,420,000 planted a year before and 43,520,000 two years before. Department states that average condition of crop, 68.9, is the lowest for the December estimate since the government's reports began.
- Dec. 21—Sterling reaches $\$3.34\frac{1}{4}$, highest since recovery began and nearly 20 cents above low price of Nov. 29, reached when default by England on war debt was rumored. Steel output 14 per cent.

X. BUSINESS AND FINANCE

Dec. 23 — French Government suggests negotiations about war debt. U. S. refuses until December instalment is paid. Bank of England reports, as result of war-debt payment, decrease for the week of £19,677,000 in gold holdings, decrease of £17,518,000 in banking department's reserve and fall of ratio of reverses to deposits from $33\frac{1}{3}$ per cent to $18\frac{1}{8}$. But bank had increased its government security holdings by £25,500,000 and its general position was only slightly weaker than in the same

week of 1931—gold holdings being only £725,000 smaller and the $18\frac{1}{8}$ per cent reserve ratio comparing with 20%.

Dec. 27 — South Africa goes off the gold standard.

Dec. 28 — Wheat for May delivery touches $43\frac{1}{4}$ cents, lowest for the year and for the period. Steel output 13 per cent.

Dec. 30 — Bank of England's reserve ratio falls to 16%, lowest since Jan. 6, 1926, but comparing with 18% at the end of 1931.

DIVISION X

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

ECONOMICS

AMERICAN ECONOMIC ASSN., North-Western University, Evanston, Ill.
AMERICAN FAIR TRADE LEAGUE, 71 W. 23rd Street, New York City.

AMERICAN INSTITUTE OF ACCOUNTANTS, 135 Cedar Street, New York City.

AMERICAN INSTITUTE OF WEIGHTS AND MEASURES, 33 Rector Street, New York City.

AMERICAN PROTECTIVE TARIFF LEAGUE, 33 E. 10th Street, New York City.

AMERICAN RETAILERS' ASSN., 128 W. 31st Street, New York City.

AMERICAN STATISTICAL ASSN., INC., 236 Wooster Street, New York City.

CENTRAL ASSN. OF ACCOUNTANTS, 51 Chambers Street, New York City.

CHAMBER OF COMMERCE OF THE UNITED STATES, 1615 H Street N. W., Washington, D. C.

CONSOLIDATED STOCK EXCHANGE OF NEW YORK, 14 Pearl Street, New York City.

CONSUMERS' LEAGUE OF NEW YORK, 289 Fourth Ave., New York City.

COOPERATIVE LEAGUE OF AMERICA, 167 W. 12th Street, New York City.

ECONOMY LEAGUE, 1021 Park Ave., New York City.

FAIR TARIFF LEAGUE, 40 Rector St., New York City.

FEDERATION OF AMERICAN INDUSTRIES, INC., 511 Fifth Ave., New York City.

FRANCO-AMERICAN BOARD OF COMMERCE AND INDUSTRY, 90 Fifth Ave., New York City.

FRENCH CHAMBER OF COMMERCE, 4 E. 52nd Street, New York City.

GENERAL SOCIETY OF MECHANICS & TRADESMEN OF NEW YORK CITY, 18 W. 44th Street, New York City.

HOME MARKET CLUB, 38 Chauncey Street, Boston, Mass.

INSTITUTE OF ECONOMICS, 26 Jackson Place, Washington, D. C.

INTERNATIONAL ACCOUNTANTS' SOCIETY, 50 Broadway, New York City.

INTERNATIONAL FREE TRADE LEAGUE, R.F.D. No. 2, Wilmington, Del.

ITALIAN CHAMBER OF COMMERCE IN NEW YORK, 27 Cleveland Place, New York City.

LEAGUE FOR INDUSTRIAL RIGHTS, 165 Broadway, New York City.

MELLON INSTITUTE OF INDUSTRIAL RESEARCH, University of Pittsburgh, Pittsburgh, Penna.

MERCHANTS' AND CONSUMERS' LEAGUE, 500 Fifth Ave., New York City.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

NATIONAL ASSOCIATION OF COST ACCOUNTANTS, 25 W. 43rd Street, New York City.

NATIONAL ASSN. OF CREDIT MEN, 1 Park Ave., New York City.

NATIONAL ASSN. OF REAL ESTATE BOARDS, 310 S. Michigan Ave., Chicago, Ill.

NATIONAL ASSN. OF RETAIL GROCERS, 601 Gumbel Bldg., Kansas City, Mo.

NATIONAL BUREAU OF ECONOMIC RESEARCH, INC., 474 W. 24th Street, New York City.

NATIONAL CONSUMERS' LEAGUE, 156 Fifth Ave., New York City.

NATIONAL ECONOMIC LEAGUE, 6 Beacon Street, Boston, Mass.

NATIONAL FOREIGN TRADE COUNCIL, 1 Hanover Square, New York City.

NATIONAL RESEARCH COUNCIL, 29 W. 39th Street, New York City.

NATIONAL WHOLESALE GROCERS' ASSN. OF THE U. S., 6 Harrison Street, New York City.

NEW YORK STOCK EXCHANGE, 11 Wall Street, New York City.

PAN-AMERICAN ADVERTISING ASSN., 32 Burling Slip, New York City.

PETROLEUM EXPORT ASSN., INC., 25 W. 43rd Street, New York City.

PROTECTIVE TARIFF LEAGUE, 137 Centre Street, New York City.

UNITED COMMERCIAL TRAVELERS OF AMERICA, 632 N. Park St., Columbus, O.

BANKING AND CURRENCY

AMERICAN BANKERS ASSN., 110 East 42nd Street, New York City.

AMERICAN INSTITUTE OF BANKING, 420 Lexington Ave., New York City.

INVESTMENT BANKERS ASSN. OF AMERICA, 531 First National Bank Bldg., 33 S. Clark St., Chicago, Ill.

INVESTORS' VIGILANCE COMMITTEE, INC., 42 Broadway, New York City.

NATIONAL ASSN. OF MUTUAL SAVINGS BANKS, 11 East 36th Street, New York City.

NATIONAL ASSN. OF SUPERINTENDENTS OF STATE BANKS, Nashville, Tenn.

NEW YORK CLEARING HOUSE ASSN., 77 Cedar St., New York City.

PRIVATE BANKERS ASSN., 31 Nassau Street, New York City.

UNITED STATES LEAGUE OF BUILDING AND LOAN ASSNS., 22 East 12th Street, Cincinnati, O.

INSURANCE

ACTUARIAL SOCIETY OF AMERICA, 256 Broadway, New York City.

AMERICAN INSTITUTE OF ACTUARIES, 720 N. Michigan Ave., Chicago, Ill.

AMERICAN INSTITUTE OF MARINE UNDERWRITERS, 56 Beaver Street, New York City.

AMERICAN LIFE CONVENTION, Omaha, Neb.

AMERICAN MARINE INSURANCE SYNDICATE, 56 Beaver Street, New York City.

ASSOCIATION OF CASUALTY & SURETY EXECUTIVES, 1 Park Ave., New York City.

ASSOCIATION OF LIFE INSURANCE PRESIDENTS, 165 Broadway, New York City.

BOARD OF UNDERWRITERS OF NEW YORK, 56 Beaver Street, New York City.

CASUALTY ACTUARIAL SOCIETY, 75 Fulton Street, New York City.

NATIONAL AIRCRAFT UNDERWRITERS' ASSN., 1 Park Ave., New York City.

NATIONAL ASSN. OF LIFE UNDERWRITERS, 11 W. 42nd Street, New York City.

NATIONAL ASSN. OF MUTUAL CASUALTY CO.'S, 730 Fifth Ave., New York City.

NATIONAL ASSN. OF TRAVELERS' AID SOCIETIES, 23 W. 43rd Street, New York City.

NATIONAL BOARD OF FIRE UNDERWRITERS, 85 John Street, New York City.

NATIONAL BUREAU OF CASUALTY & SURETY UNDERWRITERS, 1 Park Ave., New York City.

NATIONAL CONVENTION OF INSURANCE COMMISSIONERS, Nashville, Tenn.

NATIONAL COUNCIL ON COMPENSATION INSURANCE, 151 Fifth Ave., New York City.

NATIONAL COUNCIL ON WORKMEN'S COMPENSATION INSURANCE, 80 Maiden Lane, New York City.

NATIONAL FIRE PROTECTION ASSOCIATION, Boston, Mass.

SURETY ASSOCIATION OF AMERICA, 160 Broadway, New York City.

DIVISION XI

AGRICULTURE AND ALLIED INDUSTRIES

CONDITIONS IN AGRICULTURE

By ARTHUR M. HYDE

SECRETARY OF AGRICULTURE

FARM COMMODITY PRICES

After declining in the first half of 1932 to 52 per cent of the pre-war (1909-14) average, farm commodity prices in the United States recovered somewhat. The average for August and also for September was 59 per cent of the pre-war level. This was still about 18 per cent below the average for September, 1931. The recovery in prices was accompanied by a somewhat greater gain in the exchange value or purchasing power of farm commodities. From June to September, the prices of the things that farmers usually buy dropped from 110 per cent to 106 per cent of the pre-war level. In consequence the ratio of the prices received to the prices paid by farmers, or in other words the purchasing power index of farm commodities, rose from 48 in June to 56 in September. Considered merely as net gain, the change could not encourage farmers greatly. As an augury of better times, however, the up-trend seemed important. It was the first sustained improvement. Agriculture felt the shock of the crisis earlier and more severely than most other industries. It gave some indication of leading in recovery.

FARM INCOMES

Farm incomes depend, of course, on the volume and the costs of production as well as on prices received. Agricultural production in the United States has been fairly stable since 1924. Costs of production have

declined but moderately. Only on feeds, hired labor, and machinery have farmers been able to reduce their outlay materially. Interest, taxes, and other important cost items remain high. Roughly, therefore, the decline in the purchasing power of farm commodities since 1929 reflects a corresponding decline in farm earnings. In 1929 the gross income from agriculture in the United States was about \$11,911,000,000. It fell to \$9,347,000,000 in 1930, and to \$6,920,000,000 in 1931. It seemed probable toward the end of 1932 that the low prices received during the year would reduce the income from farm production another 25 per cent, or down to a little more than \$5,000,000,000. Assuming that this provisional estimate stands, the gross income from agriculture in 1932 will be less than half what it was in 1929. There will be at least a proportionate decline in net farm incomes.

PRODUCTION AND DEMAND

As already suggested, the situation has some hopeful aspects. Agriculture did not, because it could not, reduce its production as much as other industries reduced theirs when demand fell off at home and abroad. Farm production in the United States in 1931, for example, was about the same as it was in 1928, whereas the production of non-agricultural commodities was nearly 50 per cent less. Hence, the recent upturn in agricultural prices reflects, not an adjust-

ment in production, but an improvement in demand. It manifests, in other words, a general improvement in economic conditions. Farm recovery would come quicker were farmers able to reduce their production promptly in response to a reduction in demand. That it comes without such aid seems to indicate a real turn in the depression. It is risky to base too much hope on the showing of only a few months, but the time that has passed since the depression began, the extraordinarily low point to which prices descended, and recent gains in business activity both at home and abroad, seem to indicate that a favorable change is due.

The inability of farmers to shorten sail quickly when demand falls does not cast any reflection upon their efficiency. Farms cannot be quickly shut down like factories. This fact, a heavy drawback to agriculture, is nevertheless a blessing to urban groups. It makes agriculture the great shock-absorber and stabilizing influence in hard times. Sustained farm production, though it depresses farm commodity prices, makes life easier for wage earners with reduced incomes and lessens the burden of unemployment relief. It is necessity and not philanthropy that makes agriculture fill this rôle. Nevertheless, it does so to the substantial benefit of the community, and the fact should be remembered when farmers seek Government help.

CROP ADJUSTMENTS

There have been regional ups and downs and shifts in the importance of different crops in the United States in recent years notwithstanding the stability of farm production as a whole. Grain production has declined, the production of meat animals has remained about the same, and the production of dairy products, poultry, truck crops, and fruits has increased. Different regions felt the depression unequally. Generally speaking, commercial surplus producers in areas distant from their markets suffered most. In some cases freight and handling costs left no

margins whatever. This fact tended to stimulate production in certain deficit areas. The South, for example, increased its production of feed crops and livestock, and reduced its dependence on the Corn Belt. In like manner the East increased its food production and thus weakened the market for Western products. In 1932 acreages of the cash crops declined greatly and acreages of the feed crops increased. The area seeded to winter wheat for the 1932 harvest was 8 per cent less than that of the previous year. On the other hand, the corn acreage was the second largest on record, about 3.3 per cent above that of 1931. The barley acreage was a record, the oats acreage was 5.7 per cent larger than that of 1931, cotton acreage was 9.5 per cent less than that of 1931, the tobacco acreage 29 per cent less, the beans acreage 21 per cent less, and the rice acreage 13 per cent less. These readjustments reflected the influence of low prices in the cash crop markets and the relatively greater worth of feed crops. All told, the acreage was slightly greater than that of 1931, but less than that of 1930 and 1929. The composite yield of field crops was 6 per cent less than that of 1931 and 4 per cent below the average for the 5-year period 1924-1929.

PRODUCTION IN 1932

Cotton, Grains and Fruit.—Cotton production was estimated in October at 11,425,000 bales. This was only two-thirds as large as the 1931 crop, and 23 per cent below the average for the five years 1926-1930. Wheat production was extremely short. Winter and spring crops combined totaled 712,000,000 bushels, or 14 per cent below the 1924-1928 average. (This 5-year period is used for comparative purposes, because it excludes the drought year 1930.) Corn production was 2,885,000,000 bushels, or 10 per cent above the 1924-28 average. The rye crop was 42,500,000 bushels, or 1,600,000 bushels below the 5-year average. Oats production was 1,265,000,000 bushels, or just below the 5-year average. Bar-

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ley production, upon a greatly increased acreage, was 313,000,000 bushels, or 43 per cent above the 5-year average. The tobacco crop at 1,012,000,000 pounds was 287,000,000 pounds below the 5-year average. Apple production was one-fourth below the 5-year average, peach production one-fifth below it, and grape production 9 per cent below it. The orange, grapefruit, and pear crops were above the average. The potato crop, at 357,000,000 bushels, was 19,000,000 bushels less than in 1931, and 4,000,000 bushels less than the 5-year average.

Meats.—Meat supplies from livestock slaughtered under Federal inspection during the first 8 months of 1932 were about 2 per cent smaller than in the corresponding months of 1931, but farm and retail slaughter was larger; hence, the total supply was about the same. Declining demand compelled producers to move their animals at drastic price reductions. In the first 8 months of the year, the average price of slaughter cattle was \$5.17 a hundred pounds, as compared with \$6.53 in the corresponding period of 1931, and a 5-year (1927-31) average of \$9.22. Hog slaughter under Federal inspection in the year ended September 30, 1932, brought an average price of only \$4.00 a hundred pounds, as compared with an average of \$7.21 in the previous year, and a 5-year (1927-31) average of \$9.35. The average price paid for sheep and lambs slaughtered under Federal inspection in the first 8 months of 1932 was \$5.87 a hundred pounds, as compared with \$7.72 in the corresponding period of the previous year, and a 5-year (1927-31) average of \$11.54. Slaughterers operating under Federal inspection paid for livestock about 35 per cent less in the first 8 months of 1932 than in the corresponding period of 1931, and 61 per cent less than similar payments in the first 8 months of 1929.

Dairy Products.—Production of butter, cheese, and condensed milk and evaporated milk in the United States was approximately 1.1 per cent less in the 8 months ended

August 31, 1932, than in the corresponding period of 1931. The number of milk cows on farms increased, as it has done since 1928. The consumption of dairy products decreased more than the production. There was a decrease of approximately 3.7 per cent in the consumption of butter, cheese, condensed milk, and evaporated milk from January 1, 1932, to August 31, 1932, as compared with the consumption in the corresponding period of the previous year. Farm prices of dairy products in the same period averaged 24 per cent lower than in the corresponding period of the preceding year.

Eggs and Poultry.—The production of eggs on farms was about 3.2 per cent less in the first half of 1932 than in the first half of 1931. It was 2.6 per cent less than the 5-year (1926-30) average for the same months. Egg prices advanced sharply during the summer and early fall. Hatchings were later than those of 1931 and produced a larger supply of broilers. Young chickens in farm flocks on July 1, 1932, were 7 per cent more numerous than on the same date in 1931. Accordingly poultry prices failed to improve.

FARM REAL ESTATE VALUES

Agriculture lost heavily during the year in capital values as well as in current income. Farm real estate values continued to fall in nearly all parts of the country. In the 12 months ended March 1, 1932, farm real estate values declined more than in the preceding year. They dropped from 106 per cent to 89 per cent of the pre-war (1912-14) average. More than two-thirds of the states reported values lower than pre-war levels. Only two regions, New England and the Pacific Coast States, reported average values higher than those of the pre-war period. The index for New England was 116, and for the Pacific Coast States 118. In the east and west South Central States, values fell to an average of 3 per cent below the pre-war level; in the South Atlantic and Middle Atlantic States to 4 per cent below

that level; in the Mountain States to 18 per cent below it; in the west North Central States to 19 per cent below it, and in the east North Central States to 27 per cent below it. As estimated by the Department of Agriculture, the total value of all the capital employed in agricultural production as of January 1, 1932, was \$45,000,000,000, as compared with \$58,130,000,000 on January 1, 1930, a decline of about 22 per cent.

MORTGAGE DEBT

Mortgage debt and taxes pressed heavily on agriculture. Total farm mortgage debt in the United States increased from \$3,300,000,000 in 1910 to \$9,500,000,000 in 1928. It fell slightly thereafter largely as a result of foreclosures. In 1930, the interest and attendant costs on this debt represented a fixed annual charge of \$568,000,000. Interest on the farm mortgage debt in 1931 absorbed about 8 per cent of the gross farm income, compared with 4 per cent in 1920, and 3 per cent in 1909. About 40 per cent of all farms in the country were mortgaged in 1930, as compared with 30.8 per cent in 1925.

FARM TAXES

In general, farm property taxes have not diminished during the depression although in one or two states the farmers have received some relief. In 1930 and 1931 farm taxes for the country as a whole were about 166 per cent higher than in 1914. In 1931 it took about $4\frac{1}{2}$ times as many units of farm products to pay the farm tax bill as it took in 1914. The taxes absorbed about 11 per cent of the gross farm income, as compared with only 4 per cent before the war.

Farmers carry an unfair proportion of the country's tax burden. This is largely a result of the fact that the so-called general property tax is the chief reliance of state and local taxing bodies. It is not a part of the Federal revenue system. Farm tax studies by the Department of Agriculture show that the existing tax system inflicts a greater injury upon

agriculture today than it did a few years ago. Relief for agriculture calls for substitutes for part of the general property tax levy. Income taxes and excise taxes, the leading alternatives, are the main reliance of the Federal Government. If the states are to draw large revenues from these sources, it will be necessary to coordinate the Federal and state tax systems. Some relief should be obtainable also through the reorganization of rural local government.

FEDERAL CREDIT ASSISTANCE

The Federal Government relieved farm credit stringency materially during 1932. It authorized production loans out of relief appropriations remaining unexpended from the previous year, provided additional funds for production loans in the Reconstruction Finance Corporation Act, increased the lending power of the Federal Intermediate Credit Banks, appropriated \$125,000,000 to increase the capital stock of the Federal Land Banks, provided a \$10,000,000 loan fund to assist individuals to organize or enlarge Agricultural Credit corporations and Livestock Loan companies, and improved the situation generally by action taken under the Reconstruction Finance Corporation Act and the Glass-Steagall Bill. The Reconstruction Finance Corporation organized regional Agricultural Credit corporations. By the end of October, 10 such corporations had been set up, each having a minimum capital of \$3,000,000. They made loans to producers for production and for marketing.

In providing \$125,000,000 of new capital for the Federal Land Banks, Congress authorized these institutions to give hard-pressed borrowers more time to pay their loans. It earmarked \$25,000,000 of the amount appropriated for that specific purpose. The sum became available immediately for the relief of farmers who could not meet their payments. The law provided that this \$25,000,000 should be used exclusively to supply the Federal Land Banks with funds to use in place of the money

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they would be temporarily deprived of by the granting of extensions. It directed the banks to grant extensions whenever in their judgment conditions warranted that course. This policy is financially sound, as well as humane. The economic emergency that makes many farmers unable to carry their mortgages will pass. When farm-earning power revives, obligations can be met. Farm solvency will be restored, and farm owners will keep their farms. It would be a loss to the Federal Land Banks, as well as to the farmers, if circumstances compelled a drastic foreclosure policy. Fortunately that is not the case.

LAND UTILIZATION

Program Requirements.—Agriculture's present situation draws attention to the necessity for a better economic utilization of our land resources, and shows that it is necessary to control erosion, to make far-sighted provision for future timber and public recreation needs, to preserve wild life, to divert lands submarginal for farming to other uses, to guide land settlement, and to make certain adjustments in governmental organizations so that tax burdens may be reduced. In 1931 a national conference met in Chicago to discuss the formation of a land use program. Committees set up by the conference are studying how the country may replace its traditional policy of planless agricultural development with a comprehensive and thoroughly integrated program of land utilization.

Policies and Problems.—Devising plans to get out of agriculture certain lands that it cannot digest is only part of the task. The helter-skelter land grabbing characteristic of America's historic land policy does not suit the needs of the present age. That policy, a trial and error method inherited from the pioneer epoch, now produces mostly error. The time has come to replace guesswork with science as a guide to the right use of land. Each phase of the problem is so complicated that the details may hide the meaning of

the whole. Specific proposals are pending regarding land classification, reclamation, grazing policy, the public acquisition of lands, the disposition of submarginal lands, and other important matters. There is involved a maze of agricultural, legal, and administrative problems. Nevertheless, the fundamentals of land use reform are simple. Blind agricultural expansion, much of it running into land less suited to farming than to other uses, causes overproduction and makes average production costs too high. That is what we have had heretofore. It is what we still have. As a result our agricultural system is struggling vainly to assimilate much land that should never have been brought into cultivation. Millions of acres of cutover land have become tax delinquent. These lands should be diverted to better uses, and other land not suited to farming should be kept out of agriculture. This cannot be accomplished by any merely negative process. It is not enough to say that one area should be taken out of farming and another not brought in. In crowded nations land comes inevitably into use somehow. Hence, the real problem is to find the right use. Broadly, the idea is to transform submarginal farm land and idle cutover land into forest, wild life, or recreational land; in short, to substitute paying for non-paying uses. Much land that cannot pay in farms may raise trees or wild life advantageously. Other land may be a better playground than a workground. It is not always a question of getting immediate cash returns.

Delinquent Land.—Much tax delinquency on agricultural lands is due to fundamental maladjustments in the utilization of land unsuited for farming even in normal times and incapable of paying taxes to support necessary public improvements, schools, and other basic elements of community life. Such land is destined to chronic tax delinquency. Considerable areas of delinquent land have already been taken over by states and counties. This presents an acute problem of land use plan-

ning, readjustment in taxation, and reorganization of rural government and institutions.

Drainage and Irrigation.—Another challenge to constructive action is the plight of numerous drainage and irrigation districts that find themselves in financial difficulties. In 1930, 35 states had organized drainage enterprises covering 64,409,000 acres. The investment in those enterprises was \$680,733,000. They were undertaken to bring land into cultivation. This object was realized only in part, for some of the projects were ill advised and all of them were affected seriously by the depression. Even in 1929 there were no crops on nearly 30,000,000 acres, or about 35.5 per cent of the total area in drainage enterprises in the United States. Enterprises containing a total of 9,813,000 acres were in arrears in their payments of interest or principal. Tax payments were delinquent on 10,051,000 acres. In one state, tax delinquency covered 51 per cent of the area in drainage enterprises, and in another state 24 per cent. This situation has grown much worse in the last two years. Like conditions exist in certain irrigation districts. Even in 1929, out of 26,000,000 acres in irrigation districts which could have been supplied with water, 25 per cent was not irrigated. Of 19 states containing irrigation districts, only 8 irrigated as much as three-fourths of the area capable of being supplied with water under irrigation facilities then existing. In one state payments of interest or principal in bonds were past due on Jan. 1, 1931, in 19 out of 85 irrigation districts. In three districts more than two-thirds of the taxes levied for the years 1927-30 remained uncollected. In another state 13 districts out of a total of 48 were in default. Still another state recently has undertaken to assume the obligations of thousands of acres mistakenly drained, and expects to devote the land again to game and fish, in which uses the land should have been left in the first place. Those distressed districts that are capable of holding their

own in agricultural competition will probably need to undergo a process of financial reorganization.

Population Movements.—Movements of population between town and country affect the land problem. Population ebbs and flows between town and country normally. It is the net balance that is significant. From 1922 to 1929, the balance ran heavily in favor of the cities and towns. In that period, the yearly net outflow from farms to cities and towns varied from 576,000 to 1,120,000 persons. In 1930, however, the net outflow dropped to 151,000 persons. There was the usual rural excess of births over deaths. Consequently, the total farm population, for the first time in at least a quarter of a century, increased. It increased again in 1931, during which year the country-ward flow and the city-ward flow almost balanced. Urban unemployment obviously had much to do with this change in the movement of population. Whether it will persist after industrial employment revives remains to be seen. Unquestionably, however, it creates new problems for rural communities, and has an important bearing on the land-use problem.

Unemployment Projects.—Besides the spontaneous movement of population from cities and towns to the country, there is talk of concerted effort to place unemployed city people on the land. Such projects should not be undertaken lightly. Merely to shift the problem of relieving want is not necessarily to solve it. Moving needy folk from towns and cities to the country may throw a burden on rural communities without simplifying the unemployment problem. People, of course, have a right to move about and to seek opportunity wherever it may exist. But it is another thing publicly to encourage a movement that may have no sound economic foundation. In any event, the movement should be guided in the light of the best information available in order to protect the interest of those who may move to the land and to protect

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rural communities against having the problems of urban unemployment shifted to them.

People ignorant of agriculture and rural life often think farming is easy. Usually they are disappointed. Commonly, the unemployed city dweller seeking land gravitates to the submarginal acres—to precisely the areas that should not be farmed. The deceptive cheapness of such land attracts him. Encouraging inexperienced people to go on land that others have abandoned, or on land manifestly unsuited to agriculture, is neither sensible nor humane. It does not permanently relieve unemployment, and checks the development of a rational land utilization policy.

There are opportunities to absorb unemployed people into agriculture. Thousands having country connections have already returned, and others will do so. In some cities vacant lots and plots of land have been helpfully provided to unemployed families for gardens. There is a movement of industrial workers to suburban homes with land enough for production of some food. This movement will continue and should be encouraged. But mass migration from the city to the country is another story. A movement large enough to diminish urban unemployment materially would create serious rural problems. It would go squarely against the need to put our land-use system on a rational basis.

AGRICULTURAL LEGISLATION

BY MILTON S. EISENHOWER

DIRECTOR OF INFORMATION, DEPARTMENT OF AGRICULTURE

GENERAL

Agricultural legislation figured prominently in the last session of Congress. Acts were passed to strengthen existing Federal agricultural credit institutions. New credit agencies were established. Crop production loans were made to farmers. Exceptionally large amounts were granted to the Department of Agriculture to stimulate employment through the construction of Federal-aid highways. Funds were appropriated to carry on the regular activities of the Department of Agriculture.

AGRICULTURAL APPROPRIATION ACT

Application of Funds.—Congress provided \$174,671,655 for the Department of Agriculture under the Agricultural Appropriation Act for the fiscal year ending June 30, 1933. This total included \$108,905,000 for Federal-aid highway and forest road construction; the remainder was for all the manifold research, service, and regulatory activities of the De-

partment and for payments to the States to aid in State research, extension, and forestry work. Permanent and indefinite appropriations made an additional sum of \$11,211,571 available to the Department. Besides the total of \$185,883,236 thus appropriated for the work of the Department, the Agricultural Appropriation Act carried \$1,000,000 for Federal participation in the Chicago World's Fair Centennial Celebration. This fund was assigned for administration to the Chicago World's Fair Centennial Commission.

Relief Loans.—The act made \$10,000,000 available from unexpended relief appropriations of the previous year to carry into effect the provisions of an act (Public No. 11, approved March 3, 1932) authorizing loans to individuals for the purchase of stock in agricultural credit corporations, livestock loan companies, and similar organizations. In the preceding year, Congress appropriated large sums to the Department for loans and other emergency relief measures. Such relief loans did not

figure in the Department's appropriation act for the fiscal year ending June 30, 1933.

Ordinary Expenditures. — Appropriations for the ordinary activities of the Department were reduced by 16.5 per cent. This was in keeping with the general policy of reducing Federal expenditures. Nearly 81 per cent of the Department's expenditures and obligations for the fiscal year ended June 30, 1932, went for general social purposes such as road building, weather reporting, food and drug regulation, nutrition research, meat inspection, commodity standardization and inspection, forest conservation and wild life conservation. Only 19 per cent went for strictly agricultural purposes.

RECONSTRUCTION FINANCE CORPORATION ACT

Loans To Farmers. — Loans to farmers for the purchase of seed, feed, fertilizers and so forth became available under a clause of the Reconstruction Finance Corporation Act (approved Jan. 22, 1932). For this purpose, the act set aside \$50,000,000 plus 10 per cent of any increase in the capital of the Reconstruction Finance Corporation that it might bring about through notes, debentures, bonds, or other obligations of the corporation. The administration of this loan fund was entrusted to the Secretary of Agriculture. He was directed by Congress to give preference in making loans or advances to farmers who suffered from crop failures in 1931.

Loans to Banking Institutions. — Agriculture benefited also by features of the Reconstruction Finance Corporation Act which enabled the corporation to make advances to banks, mortgage loan companies, credit unions, agricultural credit corporations, the Federal land banks, the joint stock land banks, and the Federal intermediate credit banks.

EMERGENCY RELIEF AND CONSTRUCTION ACT

Agricultural Credit. — Under the Emergency Relief and Construction Act of 1932 (Public No. 302, approved July 21, 1932), Congress made

additional provision for agricultural credit. It authorized the Reconstruction Finance Corporation to create, in any of the 12 Federal land bank districts in which such an organization seemed desirable, a regional agricultural credit corporation with a paid-up capital of not less than \$3,000,000. The Reconstruction Finance Corporation was authorized to subscribe the capital out of funds made available to the Secretary of Agriculture under the relief loan section of the Reconstruction Finance Corporation Act. The agricultural credit corporations, several of which have now been organized, make loans or advances to farmers and stockmen for crop production and for the raising, breeding, fattening, and marketing of livestock. They rediscount agricultural and livestock paper with the Reconstruction Finance Corporation, the Federal Reserve Banks, and the Federal Intermediate Credit Banks. Action taken under this section of the Emergency Relief and Construction Act of 1932 accomplishes on a broader scale some of the objects contemplated in the act (Public No. 11) authorizing loans to individuals for the purchase of stock in agricultural credit corporations and livestock loan companies.

ADDITIONAL FUND FOR HIGHWAY CONSTRUCTION

The relief act provided \$120,000,000 for expenditure in emergency construction on the Federal-aid highway system, \$5,000,000 for the construction and improvement of national forest highways, \$5,000,000 for the construction and maintenance of roads, trails, bridges, fire lanes, and so forth in the national forests. It also carried \$2,000,000 for the construction of main roads through unreserved public lands other than forest reservations. The \$120,000,000 for road construction is for advances to the States, and becomes available to pay the States' share in the cost of Federal-aid projects. Amounts so advanced are to be deducted from regular apportionments made to the States under authorizations for carrying out the provisions of the Fed-

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eral Highway Act. The deductions begin with the fiscal year 1938.

ADDITIONAL CAPITAL FOR FEDERAL LAND BANKS

Legislation amending the Federal Farm Loan Act provided additional capital for the Federal land banks. This measure (Public No. 30, approved Jan. 3, 1932) directed the Secretary of the Treasury to subscribe for capital stock of the Federal land banks to the amount of \$125,000,000. It earmarked part of the money to facilitate extensions of time for the payment of overdue farm mortgages.

Under an act (Public No. 138, approved May 19, 1932), Congress strengthened the Federal Intermediate Credit Banks. The measure authorized Federal Reserve Banks to discount notes payable to and bearing the endorsement of any Federal Intermediate Credit Bank. It provided also for action should the paid-in capital of any Federal Intermediate Credit Bank become impaired. The loss would be assessed on an equitable apportionment among the other Federal Intermediate Credit Banks.

DISTRIBUTING GOVERNMENT WHEAT

Red Cross Agency.—Under an act (Public Resolution No. 12, approved March 7, 1932), Congress authorized the distribution of wheat for the relief of distress. The measure directed the Federal Farm Board to deliver wheat to the National Red Cross, or to any organization designated by the Red Cross, for use in

providing food for needy and distressed people, and in providing feed for livestock in areas that suffered crop failure in 1931. The act limited the amount of wheat that may be so distributed to 40,000,000 bushels.

Another measure (Public Resolution No. 33, approved July 5, 1932), authorized the distribution of both wheat and cotton for the relief of distress. This resolution directed the Federal Farm Board to deliver 45,000,000 bushels of wheat and 500,000 bales of cotton to the Red Cross for distribution to needy persons. The resolution authorized the Federal Farm Board to obtain wheat from the Grain Stabilization Corporation and cotton from the Cotton Stabilization Corporation by canceling proportionate values in its loans to those bodies. Still another measure (Public Resolution No. 43, approved July 22, 1932) appropriated \$40,000,000 to enable the Federal Farm Board to carry out the provisions of the resolution authorizing the distribution of Government-owned wheat and cotton.

HOMESTEAD RESIDENCE REQUIREMENTS

Congress passed an act (Public No. 51, approved March 2, 1932) waiving homestead residence requirements in drought-stricken areas during 1929, 1930, 1931, and 1932. It excuses from residence upon his homestead during all or part of these years any homestead settler or entry-man who may have been forced to leave in order to obtain food and other necessities of life.

COTTON AND GRAIN CROPS

By W. F. CALLANDER

CHAIRMAN, CROP REPORTING BOARD, DEPARTMENT OF AGRICULTURE

COTTON PRODUCTION

Comparative Data on Total Crop.—The 1932 cotton crop of 12,727,000 bales (Dec. 1 preliminary estimate) was 4,369,000 bales less than the very large crop of 1931. The reduc-

tion of 26 per cent in comparison with last year's crop resulted from 7.6 per cent reduction in acreage harvested and 19 per cent decrease in yield per acre. The 1932 crop was less than the average crop of the 5-year period,

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1925-1929 of 15,268,000 bales by 2,541,000 bales, or 17 per cent. With the exception of the 1932 estimate the production data refer to the ginnings, converted to 500 pound gross weight bales as reported to the Bureau of the Census by its gin enumerators. The final report by the Bureau of the Census for the 1932 crop will be issued in May, 1933.

Production by States.—The production of cotton was less in 1932 than it was in 1931 in every State. Only four States produced in excess of 1,000,000 bales whereas in 1931 seven States had a million or more bales each. The Texas crop, expressed in gross weight bales was 4,445,000 bales; Arkansas, with 1,260,000 bales, was second in production; Mississippi, with 1,150,000 bales was third and Oklahoma was fourth with 1,080,000 bales. The Alabama crop was only 930,000 bales; Georgia had 845,000 bales, South Carolina, 695,000 bales; North Carolina, 640,000 bales and Louisiana, 610,000 bales.

Cottonseed and Lint.—The production of cottonseed in 1932 was 5,659,000 tons compared with 7,602,000 tons in 1931 and the 5-year (1925-1929) average was 6,783,000 tons. These are computations based on an assumed yield of 65 pounds of seed and 35 pounds of lint from each 100 pounds of seed cotton. For a great many years the Department of Agriculture has used in connection with the production estimates made in December an average price on Dec. 1 to secure an approximate evaluation of crop production for the year. A similar report was not made in 1932. A decline in price of cotton lint from 6.1 cents per pound on Nov. 15, 1931 to 5.9 cents per pound on Nov. 15, 1932 indicates roughly that the value of cotton lint was reduced approximately as much as the production. Cottonseed prices per ton for the same dates were \$11.61 in 1931 and \$9.54 in 1932. While all of the cotton lint is normally marketed, a considerable quantity of seed is taken back to the farm from the gin and utilized for seed, feed, and fertilizer. The greatly decreased farm value of cotton and cottonseed was due, as in the case of

other crops, to the continued low prices which have accompanied the continuation of the depression.

COTTON ACREAGE

The acreage of cotton harvested in 1932 — 37,589,000 acres — was the smallest since 1923. It was 7.6 per cent less than the 40,693,000 acres harvested in 1931; 9,498,000 acres or 20.2 per cent less than the record acreage of 1926, and 16.2 per cent less than the 1925-1929 average of 44,882,000 acres. The acreage of cotton was smaller in all States except Virginia and North Carolina, where sharp reductions occurred in the competing crop,—tobacco—and in Missouri. Of the important States the greatest declines from the preceding year took place in Georgia with 13 per cent, Texas with 10 per cent, Oklahoma with over 8 per cent, and Louisiana with 8 per cent, while smaller decreases occurred in Alabama with 7 per cent, South Carolina with 6 per cent, Arkansas with 1 per cent, and Tennessee with 1 per cent. An increase of 3 per cent occurred in North Carolina. In the western cotton producing States an expansion of cotton in dry land territory in New Mexico nearly offset the decline in irrigated acreage. In Arizona and California drastic reductions of 36 per cent took place. The area of cotton abandoned in 1932 was relatively small and is estimated to have been 1.7 per cent of the area in cultivation on July 1. In 1931 abandonment was only 1.2 per cent, one of the lowest on record. The 5-year average abandonment, 1925-1929 was 3.6 per cent. The revised acreage in cultivation on July 1, 1932 was 38,227,000 acres, which was 7.0 per cent less than in 1931, 10,000,000 acres or 22 per cent less than the record acreage of 1926 and 17.9 per cent less than the average of the five years 1925-1929.

COTTON YIELDS

The average yield per acre of cotton in the United States in 1932 was estimated at 162.1 per acre harvested. This was 39 pounds or nearly 19 per cent less than the very heavy yield of

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1931 and 7 per cent higher than the 10-year average yield for the period 1921 to 1930 inclusive. In the Cotton Belt proper, yields per acre were above the 10-year average; in South Carolina where the yield in 1932 was 180 pounds against an average of 165 pounds; in Tennessee with 195 pounds compared with an average of 180 pounds, and in Arkansas with 171 pounds against a 160 pound average. In both Texas and Oklahoma yields were much above average. Texas had 153 pounds while Oklahoma had 166 pounds per acre. The 10-year average in these two States are 126 and 133 pounds respectively. The yield in North Carolina in 1932 of 223 pounds was 19 pounds per acre less than average; Georgia with 135 pounds was 7 pounds per acre below average while Alabama declined from an average of 158 pounds to 141 pounds in 1932 and Louisiana from 164 pounds to 162 pounds. The severest decline occurred in Mississippi where 144 pounds per acre were produced in 1932 in comparison with the 10-year average of 184 pounds. All of the States of the western group had higher than average yields in 1932.

The growing season of 1932 as a whole was favorable to the production of cotton. The yield was held down by relatively severe weevil damage at the beginning of the season. Boll weevils were present in greater numbers than in any year since 1928. Infestation was general over practically the entire Cotton Belt. It was worst in the Delta lands along the Mississippi River. During the last part of July showery weather favored the multiplication of weevils. September was generally favorable for maturing of the crop. While picking progressed slowly due to the fact that growers hired a minimum of pickers, weather conditions were favorable for harvesting. These conditions continued through much of October and November.

GRAIN CROPS

General.—The 1932 grain crop season differed materially from the 1931 season. In 1931 there was a large crop of winter wheat and a very small

crop of spring wheat. In 1932 the reverse was true and a large spring wheat crop and a short winter wheat crop were produced. The corn crop in 1932 was more than 10 per cent above average.* The oats crop was about 3 per cent below average, and the barley crop over 37 per cent larger than average. The grain sorghum crop was about equal to the 1931 crop. Though rye produced 24 per cent more than in the preceding year, it was still 10 per cent below average. The 1932 production of rice was about average; buckwheat was a very short crop and flaxseed only half the average size. The combined production of nine grain crops was 5,381,030,000 bushels which is 8 per cent larger than in 1931 and 15 per cent larger than the very short crop of 1930. The average production was 5,166,160,000 bushels. The corn crop which makes up over one-half of the total was large and accounts for the increased production of the group as a whole.

FOOD CROPS

Decline.—The production of grain crops used primarily for human food, —wheat, rye, buckwheat, and rice —was much smaller than in each of the three preceding years. In 1932 the production of this group amounted to 812,886,000 bushels, 18 per cent less than in 1931 and 12 per cent below the average production of 923,686,000 bushels.

Total Wheat.—The total wheat crop in 1932 of 726,831,000 bushels was 19 per cent less than the crop of 1931, 15 per cent less than the 1930 crop and 12 per cent less than the average crop of 828,676,000. Although a relatively short crop compared with production in recent years, the 1932 crop was of sufficient magnitude to more than take care of the domestic requirements for flour and for seeding the 1933 crop. The winter wheat crop in 1931 was large but the spring wheat crop was very short due to extreme drought in the Dakotas and

*Average acreage and production when mentioned refer to the 5-years, 1924 to 1928, inclusive; average yield per acre refers to the 10 years, 1919 to 1928, inclusive.

COTTON AND GRAIN CROPS

Montana. In 1932 the reverse was true,—the winter wheat crop was much smaller than in 1931 and the spring wheat crop more than twice as large as in 1931. The farm price of wheat on November 15, 1932 was 32.8 cents per bushel, only about three-fifths as much as the November 15, 1931 price of 50.5 cents.

Winter Wheat.—The winter wheat crop of 462,151,000 bushels was only about three-fifths as large as the very large crop of 787,393,000 bushels produced in 1931 and 84 per cent as large as average. To begin with, the acreage of winter wheat seeded was 7.1 per cent smaller than in the preceding year. The winter was relatively severe in the Great Plains area from South Dakota to Texas and the abandonment was large. Moisture continued deficient during the month of May and there was considerable damage from Hessian fly. With an abandonment of 16.7 per cent, 33,656,000 acres remained for harvest from 40,420,000 acres planted. In 1931, 41,357,000 acres were harvested from the seeded acreage of 43,520,000 acres and only 5 per cent abandoned. The ten-year average abandonment from 1920-1929 was 12.4 per cent. The yield per acre of winter wheat in 1932 was 13.7 bushels per acre compared with 19.0 bushels in 1931, 15.2 bushels in 1930 and a ten-year average of 14.8 bushels. Considered by classes the greatest deficiency in the wheat crop when measured by production in recent years occurred in hard red winter wheat.

Spring Wheat.—The year proved to be favorable for the growing of spring wheat. Moisture conditions and temperatures proved beneficial and abandonment of acreage was almost negligible. Although durum wheat which is normally sown somewhat later than hard red spring wheat suffered on account of dry weather during the critical stage of growth in late July and August, total production of spring wheat of 264,680,000 bushels in 1932 was more than double the very short crop of 112,826,000 bushels in 1931 and nearly as large as the average production of 280,044,000

bushels. Because of a considerable shift of acreage from durum to hard red spring, the production of 224,812,000 bushels of hard red spring wheat exceeded the average production of 213,293,000 bushels, while the production of 39,868,000 bushels of durum wheat was much less than the average production of 66,751,000 bushels of that type. The yield of durum wheat of 10.3 bushels in 1932 was also lower than the yield of hard red spring wheat at 12.7 bushels. The 10-year average yield of durum is 11.8 bushels while for other spring wheat the average is 12.6 bushels. The acreage of durum wheat at 3,863,000 acres was larger than in 1931 but 22 per cent less than average. Of other spring wheat, on the other hand, the 17,658,000 acres harvested were 60 per cent larger than in 1931 when abandonment was heavy and 16 per cent larger than average.

Rye.—The production of rye in 1932 was estimated at 39,855,000 bushels, about one-fourth larger than the short crop of 1931 when 32,026,000 bushels were produced. There has been a downward trend in acreage in recent years and the production of 1932 was considerably below the average production of earlier years. The acreage harvested at 3,271,000 acres was 7 per cent larger than in 1931 when considerable acreage was abandoned. The estimated acreage of rye seeded for all purposes, including, in addition to grain, the acreage for hay, pasture and cover crops and allowing for abandonment, was 5,000,000 acres, 6 per cent less than in the preceding year. The yield per acre of 12.2 bushels was slightly below the 10-year average of 12.5 bushels per acre. In 1931 the yield was only 10.5 bushels. The bulk of the rye crop is grown in the Dakotas, Minnesota and Montana where the extensive drought of the preceding year was unfavorable to the preparation of the soil for seeding and for the development of the young plant. The winter, spring and early summer provided sufficient moisture finally to produce practically an average yield. The farm price of rye on Nov. 15, 1932 was 22.1 cents

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per bushel, only slightly more than one-half the farm price of 41.4 cents on Nov. 15, 1931.

Buckwheat.—Both acreage and yield of buckwheat in 1932 were lower than in 1931 and resulted in a production of only 6,844,000 bushels compared to 8,890,000 bushels in 1931 and average production of 11,792,000 bushels. The acreage harvested was estimated at 464,000 in comparison with 505,000 in 1931 and an average of 718,000. The yield per acre in 1932 was 14.8 bushels; in 1931 the yield was 17.6 bushels and average yield was 16.8 bushels. The price of buckwheat on Nov. 15, 1932 was 39 cents per bushel in comparison with the 41.2 cents per bushel received by farmers a year earlier.

Rice.—Production of rice was estimated at 39,356,000 bushels which was about 14 per cent less than the 1931 crop of 46,012,000 bushels, but slightly more than the average production of 38,850,000 bushels. The decreased production in comparison with 1930 and 1931 was common in all four states producing this crop. In California both acreage and yield per acre was less than in 1931. Acreage declined in that State from 125,000 acres to 110,000 acres, the yield per acre from 68 bushels to 64 bushels and production from 8,500,000 bushels to 7,040,000 bushels. In Arkansas, Louisiana, and Texas, a part of the area of which suffered from the effects of the Gulf storm in August, rice was harvested on 759,000 acres this year in comparison with 853,000 acres in 1931. The yield per acre in Arkansas was only 46 bushels compared with 54 bushels in 1931; in Texas 48 bushels compared with 52.5 bushels in 1931; in Louisiana the yield of 39 bushels was somewhat higher than the 36.5 bushel yield of 1931. The 1932 crop in these three Southern States was 32,316,000 bushels as compared with 37,512,000 bushels in 1931 and 37,652,000 bushels in 1930. On Dec. 1 the average farm price of rice was given at 39.2 cents per bushel in comparison with 60.9 cents on Dec. 1, 1931 and 78.2 cents on Dec. 1, 1930.

FEED CROPS

General.—The computed production of farm feed crops,—corn, oats, barley and grain sorghums—amounted to 4,556,303,000 bushels compared with 3,988,879,000 bushels in 1931 and 3,703,844,000 bushels in 1930. Expressed in tons, the 111,000,000 tons produced in 1932 was 14 per cent greater than the 97,000,000 tons produced in 1931 and 28 per cent greater than the 87,000,000 tons produced in 1930. The ample supplies of corn reflected in these figures will apparently make it unnecessary except in limited localities to feed wheat to livestock as extensively in the 1932-33 feeding season as has been done during the two preceding feeding seasons. It appears likely also that the farmers will this year have an opportunity to build up reserves of feeds, a situation which has not been possible in any very extended regions during the past two or three years.

Corn.—The 1932 corn crop expressed in equivalent yield of ear corn on the entire acreage grown for all purposes is estimated at 2,908,045,000 bushels, 13 per cent larger than the 1931 crop and 41 per cent larger than the short crop of 1930. The five-year average production of corn is 2,625,063,000 bushels. The acreage or corn for all purposes was 107,729,000 acres, about 2.3 per cent larger than the 1931 and 6.9 per cent larger than the 1930 crops. The acreage in 1932 exceeded the preceding year's acreage in all sections of this country except the East North Central group of States where there was a decrease of about one per cent. The yield per acre of 27 bushels was 10.7 per cent greater than in 1931, and about equal to the 10-year average yield of 27.2 bushels. The yields were above average in all of the Corn Belt States except Ohio and Nebraska. Elsewhere yields were mostly average or lower with markedly lower than average yields in the western plains States. The combination of high yields on large acreages in the heart of the Corn Belt makes the production in the North Central States in 1932 equal to 76 per cent of the total for the country. This contrasts with 1931

COTTON AND GRAIN CROPS

when yields were especially high in many States south and east of Illinois, and the North Central States had less than 70 per cent of the country's production. In 1932 Iowa, the largest corn State, produced 540,000,000 bushels, the largest in her history and Illinois produced nearly 400,000,000 bushels. The production of corn for grain (husked and snapped) in 1932 is estimated at 2,508,920,000 bushels of grain compared with 2,215,262,000 bushels in 1931 and 1,733,573,000 bushels in 1930. The November 15 price of corn was 19.4 cents per bushel in comparison with 36.6 cents in Nov. 15, 1931 and 66.3 cents on Nov. 15, 1930.

Oats.—The production of oats in 1932 was 1,242,437,000 bushels, a little below the average of 1,277,000,000 bushels. The crop is about 11 per cent larger than the 1931 crop of 1,117,970,000 bushels and 3 per cent smaller than the 1930 crop of 1,276,035,000 bushels. Large crops were produced in the group of States from Illinois, Minnesota and South Dakota on the north, south to Texas. The other important producing States from New York west to Indiana, and Wisconsin had smaller than average crops. Production in North Dakota was also less than average. The acreage of 41,244,000 acres was 3.6 per cent greater than the 39,800,000 acres harvested in 1931 and 4.1 per cent greater than in 1930. The acreage originally seeded for grain and which was finally harvested for hay or pastured in 1932 was much less than in 1931. The yield per acre of oats was less than in 1931 in the areas south of a line extending from Arizona to Pennsylvania. In other sections the yields were generally higher this year than last. For the country as a whole the yield of 30.1 bushels per acre was slightly above the 10-year average of 29.6 bushels. In 1931 the yield was only 28.1 bushels and in 1930, 32.2 bushels. The farm price of oats on Nov. 15 was 13.1 cents per bushel compared with 23.2 cents on Nov. 15, 1931.

Barley.—In 1932 the barley crop of 299,950,000 bushels was the third largest barley crop ever produced and

was exceeded only by the 1930 crop of 303,752,000 bushels and the record 1928 crop of 331,148,000 bushels. In 1931 the crop was greatly reduced by drought and only 198,389,000 bushels were harvested. The acreage harvested in 1932 of 13,213,000 acres was about 16 per cent greater than in 1931 when 11,419,000 acres were harvested and 4.3 per cent greater than the 12,666,000 acres harvested in 1930. The higher level of barley acreage in the last few years was maintained, the five-year average, 1924-1928, being only 8,991,000 acres. For 1931 the acreage quoted above does not include the considerable acreage abandoned in that year. For the United States as a whole the yield of 22.7 bushels per acre in 1932 was about the same as the average of the ten years, 1919 to 1928. The yield in 1931 was 17.4 bushels and in 1930 24.0 bushels. The farm price of barley on Nov. 15, 1932 was 20.1 cents per bushel compared with 35.5 cents on Nov. 15, 1931.

Grain Sorghums.—The production of grain sorghums, an important feed crop on the drier lands of the western plains, was 105,871,000 bushels. This is slightly greater than the 105,214,000 bushels produced in 1931 and 8 per cent larger than the average production of 98,129,000 bushels. The acreage of this crop has steadily increased for a number of years. In 1932 it was 7,850,000 acres compared with 7,156,000 acres in 1931 and the average acreage of 6,330,000 acres. The yield per acre in 1932 was 13.5 bushels in comparison with 14.7 bushels in 1931 and the ten-year average yield of 16.4 bushels. The yield in 1932 was adversely affected by unusually dry weather in Southwestern Kansas, Southeastern Colorado and adjacent parts of Oklahoma, Texas and New Mexico. The Dec. 1 farm price of grain sorghums was given at 19.2 cents compared with 30.0 cents on Dec. 1, 1931.

FLAXSEED

Flaxseed, while neither a food nor a feed crop, is grown in competition with spring wheat and other grains in the Dakotas, Montana, and Minnesota, and linseed meal, the by-prod-

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uct of the linseed oil industry, is used as a stock feed. The flaxseed crop in 1932 was affected, like durum wheat, but more severely, by the extended dry period and extensive heat of late July and August, when the earlier planted grains had already passed the critical stage of growth. The production of 11,841,000 bushels is not much different from the 11,798,000 bushels produced in 1931. Both crops were less than half of the requirements for the domestic consumption of linseed oil in recent years. The average production for the period

1924-1928 was 23,287,000 bushels. There was considerable abandonment of acreage this year although less than in 1931. The acreage finally harvested in 1932 was estimated at 2,087,000 acres compared with 2,416,000 acres in 1931 and a 5-year average of 2,933,000 acres. The yield per acre of 5.7 bushels exceeded the 4.9 bushels per acre yield of 1931 but was 25 per cent less than the 10-year average yield of 7.6 bushels. The farm price of flaxseed on Nov. 15, was 87.1 cents per bushel and the Nov. 15, 1931 farm price was 121.9 cents per bushel.

LIVESTOCK AND MEATS

By E. W. SHEETS

BUREAU OF ANIMAL INDUSTRY, DEPARTMENT OF AGRICULTURE

FARM INCOME

Livestock Return.—Though there have been uncomfortable exceptions, livestock has somewhat better than held its own with crops as a source of farm income during the year. In 1932 farm incomes derived from crops were only about 42 per cent of those of 1929, whereas incomes from livestock were about 48 per cent of those of 1929. In the case of both crops and livestock, the commodities which are most highly international when marketed suffered most sharply. Thus, the gross income both from cotton and from wheat in 1932 is estimated by the Department to be only about 30 per cent of that in 1929, while the incomes from wool and hogs were but about one-third of their 1929 value.

Balanced Crop and Livestock Farming.—It is probably also true, though not readily proved, that these times of severe depression have brought less hardship to those farmers who have endeavored to practice a balanced system of crop and livestock farming through the years. Their income is better distributed through the year; they can often salvage something from a crop selling at ruinous prices by feeding it, thus avoiding also the cost and the losses

of storage; they have relatively more means of obtaining credit, and they can more readily formulate a live-at-home program.

Demonstration Work.—With funds specially appropriated for the purpose and in cooperation with the state agricultural colleges of North Carolina, South Carolina, Georgia, Florida, Alabama, Louisiana and Texas, demonstration work with beef cattle, swine and sheep was conducted during the year for the purpose of aiding farmers in balancing their farm programs and living well with the aid of the resources at hand. In Georgia, for example, more than 800 pure-bred cattle were introduced during the year as a result of this effort; permanent pastures, totaling nearly 9,000 acres, were planted by 449 farmers, and 648 farmers conducted cattle-feeding demonstrations, involving more than 9,500 cattle. In Texas, proper methods of dressing, cutting, and preserving meat were demonstrated at 383 hog-, 746 beef- and 97 lamb-slaughtering and cutting meetings. As a direct result of this Texas work, 64,512 families of the State made provision for their home meat supply, curing for that purpose a total of 338,000 hogs, and canning over 34,000 cattle and nearly 12,000

lambs. In Louisiana more than 400,000 pounds of farm-dressed meat were preserved as a result of this cooperative program. Other states showed similar results.

LIVESTOCK MARKETS AND PRICES

Cattle.—As the year nears its close the general level of beef-cattle prices does not differ greatly from a year ago. The eastern movement of grass cattle is not being hurried, feed on the ranges being abundant. Relative cattle and grain prices are regarded as favoring the feeder, but the availability of credit will largely govern the number bought for feeding.

Hogs.—Supplies of hogs for the winter marketing season are smaller than last year, but for next summer larger supplies are a possibility. The 1932 spring pig crop was some 3,750,000 head or 7 per cent smaller than the spring crop of 1931, but there are indications of a larger fall pig crop than that of last fall. Cheap corn and abundant feed crops well distributed, such as we have had this year, usually result in heavier feeding and in a larger pig crop the following spring.

Lambs.—For the four months, July to October, inclusive, shipments of feeder lambs from or through livestock markets into the Corn Belt States were 45 per cent smaller than in 1931, and smallest for the period since before 1919. Compared with 1931, shipments in 1932 were reduced relatively more into the Corn Belt area west of the Mississippi River, where they were 49 per cent smaller, than into the area east of the river, where they were but 28 per cent smaller. Information available in November indicated that the total number of lambs to be fed in the Western States would not differ greatly from the number fed in 1931, a decrease in Colorado being offset by increases in other states.

Feed.—The livestock feed situation in the 17 western states is generally good, with ample hay and feed supplies except in limited areas. Livestock is in good condition there.

POULTRY

Cold-storage holdings of dressed poultry on October 1 amounted to 36,000,000 pounds compared to 56,000,000 pounds on Oct. 1, 1931, and a 5-year average of 50 million pounds. On Nov. 1 total holdings of storage eggs were 3,207,000 cases, compared with 5,745,000 cases on Nov. 1 last year, and 5,838,000 cases for the 5-year average. The 1932 turkey crop was one of the largest ever raised in the United States.

FARM-POWER STUDIES

During the year all statistical material was completed on the farm-power studies conducted cooperatively by three bureaus of the U. S. Department of Agriculture and 11 state agricultural experiment stations. Data obtained on 736 farms in Illinois, Indiana, Iowa, Michigan, and Missouri for 1929 showed that 4,425 horses and mules averaged between 641 and 736 hours of work per head annually among four groups of farms classified according to type of power used. Work stock on farms on which general-purpose tractors were used did the least work per head on an average, whereas work stock used in multiple hitches did the most work annually. The cost of work per head per hour (1929 price basis) varied between 11.8 cents on farms where multiple hitches were used and 14.5 cents on farms where ordinary tractors of the 2-plow type were used. Of the various items entering into the cost of keeping these work stock, feed constituted between 70.8 and 75.8 per cent of the total, and chore labor, which was the second highest cost item, varied between 11 and 16.1 per cent.

ANIMAL HUSBANDRY RESEARCH

An achievement in the field of animal husbandry research during the year was the formulation of a program for evaluating performance in beef cattle. The procedure contemplates a final estimate of the value of each mating by measuring the performance of the offspring in terms both of efficiency of produc-

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tion and quality of production. These two measurements are then combined into a single expression of the animal's worth. By the plan, a beef animal's efficiency is expressed in terms of the number of pounds of cold dressed carcass it has produced for each 100 pounds of total digestible nutrients of feed it has consumed, including dam's milk, grain and roughage, from birth to slaughter. The score for quality is a combination of the carcass grade and the tenderness grade for the cooked rib, allowing 65 points for carcass score and 35 for tenderness score. These two scores, the one for efficiency, the other for quality, are then multiplied together in order to arrive at the single value for performance, multiplying also by a purely arbitrary factor (which has been set tentatively at .11) in order that the final score may fall somewhere between 60 and 100 which is the scale on which livestock is usually judged. Applying the above method of performance measurement to a number of closely related, apparently uniform purebred beef calves, it was found that the animals varied considerably in efficiency, in quality, and in final performance scores.

It is hoped, in this record-of-performance work with livestock, to establish that efficiency of production and quality production are not antagonistic in the same animal. If fatness and quality, in beef for exam-

ple, are found to be largely synonymous, then there is comparatively less hope for greatly improving our best families of beef cattle for the reason that the production of fat is not relatively an efficient proposition. But if the factors influencing quality can be separated into inherent influences other than mere fatness, then there is hope that we can breed super animals which will yield efficient beef and high quality beef at the same time.

By the establishment of registers of merit, based upon simple and fair evaluations of the performance ability of our breeding stock, we can, of course, facilitate raising the general average of herds and flocks. The record-of-performance movement, which is also gaining considerable headway with both sheep and swine, is a logical development toward that goal. If, as many believe it will do, further research shows that an animal's total product within a significant period of its life is, for all practical purposes, indicative of its feed-utilization efficiency, the matter of a nation-wide register of merit system will become greatly simplified. Then all that a farmer will need to do is to establish the birth date of his animal and put it on the scales before witnesses when it is ready for the slaughter test. It is thought that record-of-performance work with livestock correlates for practical use much that is of value in animal husbandry research.

THE DAIRY INDUSTRY

By L. S. RICHARDSON

BUREAU OF DAIRY INDUSTRY, DEPARTMENT OF AGRICULTURE

GENERAL

Strong Position of the Industry.

—Although the dairy industry continued to suffer from the effects of the depression throughout 1932, dairy farming at the close of the year was still in a relatively strong position as compared to most other farm enterprises. The price index for all farm

products stood at 52 on Dec. 15, whereas the index for dairy products was 69 as compared to the average of 100 for the pre-war period, 1910-1914.

Increase in Herds.—As a result of the favorable advantage of dairy products over other farm products, farmers in practically all states have

THE DAIRY INDUSTRY

continued to increase their dairy herd to obtain some additional income from surplus labor and surplus feed that is now available. The number of milk cows on farms is nearly four per cent above a year ago and about 13 per cent above four years ago. This increase is partly due to the fact that more heifers are being raised, that fewer cows are being culled from the herds, and that an increased number of dual purpose cows are being milked.

Cows and Prices.—The decline in prices of milk cows which has continued for the last three years will have a tendency to check the increase in milk cow numbers, but culling is still at a relatively slow rate and it will take some time to bring about a reduction in the number. In fact, it appears that the number of milk cows may continue to increase for another year at least. Just what effect this will have on the dairy industry as a whole is problematical. As yet the increase has not caused a proportionate increase in milk production or in commercial deliveries of milk. In some sections the low prices of dairy products will undoubtedly discourage heavy feeding, especially of purchased feed, and will tend to reduce the care given to dairy herds with the result that production per cow will be lower.

Consumption of Dairy Products.—Consumption of creamery butter was 2 per cent lower during the first 10 months of 1932 than in the same period a year earlier, and consumption of cheese was 8 per cent lower. Receipts of milk and cream at the principal cities also declined, which probably indicates a decrease in consumption of milk and cream in cities. Improvement in general industrial conditions and employment has been in evidence in the last few months. If this continues it will increase the purchasing power of consumers and increase the demand for dairy products.

Decline in Butter Stocks.—Furthermore, stocks of creamery butter on Jan. 1, 1933, totaled nearly 26,500,000 pounds less than on the same date a year earlier, which was the lowest on record for that date, and about

52,000,000 pounds below the five-year average for Jan. 1.

DAIRY HERD-IMPROVEMENT

Competitive Requirements.—With improvement in general industrial conditions and in other branches of agriculture the tendency for the general farmer to turn to dairying as a source of additional income will decline. Until then the dairy farmer who is in the milk-producing business to stay must meet the competition by improving the average production of his herd and by lowering his feed and other production costs. He will feed less of the purchased feeds and rely more on homegrown feeds, especially roughages and pastures, cull his herd closer, and establish a definite long-time breeding program that will assure him of high-producing cows for his replacements.

Production Comparisons.—That dairy farmers who cull the low-producing cows from their herds and feed the rest more efficiently are able to increase the average production and income over cost of feed is evident from the records of cows on test in the dairy herd-improvement associations. There has been a constant and continued increase in the average butterfat production by cows in the herd-improvement associations each year since the work began in 1906. In that year the average production of the cows on test was 215 pounds; in 1931 it was 306 pounds. Even since the depression began in 1929 the association cows have continued to gain while the average production of all milk cows in the United States has steadily declined in the same period. The records indicate that the average butterfat production of the association cows increased from 296 pounds in 1929 to 306 pounds in 1931, an average increase of 10 pounds per cow. The average butterfat production of all milk cows, as estimated by the Bureau of Agricultural Economics, was 181 pounds in 1929 and 176 pounds in 1931, a decrease of 5 pounds per cow.

Need for Closer Culling.—Studies of herd-improvement association records have shown time and time again

that the high-producing cow is the most economical producer, and that the income over feed cost climbs as production climbs, but at a faster rate. Tabulations of the 1931 records, for instance, showed that 1 cow producing 500 pounds of butterfat a year returned more income over cost of feed than 16 cows each producing 100 pounds of butterfat. They also showed that much closer culling is necessary for profitable production in times of depressed prices for dairy products than in normal times, and that, to maintain the profits of two or three years ago, average production must be stepped up everywhere at least 50 pounds of butterfat per cow, and that in some districts an increase of 100 pounds will scarcely maintain former profits. The 1931 records also show clearly that dairying can still be made a profitable enterprise, but that it is hopeless in most districts with cows producing less than 250 pounds of butterfat a year.

RESEARCH

Scope.—The Federal Bureau of Dairy Industry, together with state agricultural experiment stations, and other scientific agencies, are continually engaged in various research investigations to put the dairy industry on a sound and substantial basis. This work involves not only a study of those problems that have a bearing on economical production on the farm, such as improved feeding, breeding, and management practices, but it involves also a study of the possibilities of increasing the consumption of dairy products and dairy by-products.

Feeding.—Recent feeding experiments have shown how the dairy farmer may get increased returns by feeding more home-grown roughages, especially when he has both good cows and a good quality of roughage. Dairy cows will produce milk and butterfat profitably when fed exclusively on alfalfa hay and silage, with or without pasture grass. But cows fed for long periods on inferior

roughage decline in health, reproductive ability, and milk production.

Breeding schools or "inheritance schools," originated by the Federal Bureau of Dairy Industry, are being conducted in many states to show the dairy farmer and breeder the application of the laws of heredity in the scientific breeding of cattle. Many thousands of farmers attended these schools under the direction of dairy extension specialists in 1932. Through these schools it is hoped that dairy farmers will gain the incentive for establishing a definite breeding program for the development of a high-producing strain of dairy cows.

Casein.—Investigations to discover new uses for dairy products or dairy by-products are of immense importance in the future development or enlargement of the dairy farmer's market. Considerable progress within the last year has been made in developing a domestic-casein producing industry that may compete successfully with the foreign manufacturers. Casein made from skim milk is useful in countless products, but especially for coating fine printing paper. Until recently paper coaters favored imported casein because it was more uniform in quality than the domestic product. Extensive experiments have enabled the domestic producer to make an improved product and recently tests have been developed for determining the suitability of a given casein for paper coating. Efforts are now being made to establish a system of grading casein so that producers may be assured of a price based on its quality.

Milk Sugar.—The whey that results when casein is made from skim milk or when cheese is made from whole milk contains nearly 5 per cent lactose, or milk sugar. Methods have been developed recently for recovering this milk sugar at a reduced price, and two new possible market outlets for it have been found. One is in the manufacture of certain types of candy, the other in the manufacture of explosives.

DISEASES AND PESTS OF ANIMALS

DISEASES AND PESTS OF ANIMALS

BY JOHN R. MOHLER

BUREAU OF ANIMAL INDUSTRY, DEPARTMENT OF AGRICULTURE

HEALTH CONDITIONS AMONG LIVESTOCK

Extensive veterinary observation, supplemented by records of the Federal meat-inspection service, show that the general health of livestock in the United States during 1932 compared favorably with that of former years. Most of the communicable diseases are being eradicated or controlled by methods developed through scientific research. The country experienced only one outbreak of any serious foreign livestock disease during the year. This was the occurrence of foot-and-mouth disease in a large herd of garbage-fed hogs in southern California late in April. However, prompt diagnosis of this infectious malady, combined with rigid quarantines and the slaughter of all infected and exposed animals, resulted in the complete eradication of the outbreak within 10 days.

PROGRESS IN DISEASE ERADICATION

Tuberculosis.—With respect to animal diseases and pests already present in the United States, excellent progress was made in eradicating tuberculosis, tick fever, scabies, and other maladies of less economic importance. In the Nation-wide campaign against bovine tuberculosis the customary method of tuberculin testing, followed by the removal and slaughter of reactors to the test, was continued on an extensive scale. The average number of cattle so tested exceeded a million a month, of which slightly less than 2 per cent proved to be tuberculous. In former years the percentage of reactors to the test ranged between 3 and 5 per cent. Thus the progress being made toward eventual eradication is evident. For maximum economy and thoroughness most testing is conducted on a county-wide basis. When, as a result of one or more tuberculin tests

of cattle in such counties, the degree of infection has been reduced to 0.5 per cent or less, the county receives official designation as a "modified accredited area." On Nov. 1, 1932, the number of counties in this status was 1,502. In general, these counties are well distributed throughout the United States. The total number of counties engaged in eradicating tuberculosis from their livestock during the year was approximately 57 per cent of the entire number in the United States. An achievement worthy of particular note was the successful completion of tuberculin testing of all cattle in all counties in Ohio, Wisconsin, Idaho, and North Dakota, with the result that those States were officially recognized as modified accredited areas signifying practical freedom from bovine tuberculosis. The systematic eradication of this disease from swine and poultry likewise is being conducted by Federal, State, and county veterinarians in cooperation with livestock owners.

Tick Fever.—In the South where cattle ticks, which carry the disease tick fever, formerly infested 15 States, substantial gains were made in the eradication of this pest. A Federal order, effective Dec. 5, 1932, removed from quarantine 20,290 square miles of territory in Arkansas, Florida, and Texas. This release of territory in Arkansas completed the eradication of ticks in that State, making it the twelfth State to gain freedom from cattle ticks. At the end of the year the areas remaining under Federal quarantine in continental United States, because of this parasite, were confined to parts of Florida, Louisiana, and Texas. The method of eradication, as in former years, consisted principally in dipping ticky cattle, horses and mules in an arsenical solution. This method, developed through scientific research, has made possible the systematic

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eradication of tick fever from 88 per cent of the original tick-infested area. The work continues to receive the support of progressive livestock owners and public officials, with prospects of further progress.

CONTROL OF HOG CHOLERA

The extensive use of the preventive-serum treatment has greatly reduced the ravages of hog cholera. In herds not protected by the immunizing treatment, outbreaks occur sporadically, depending largely on the degree of precaution exercised in excluding carriers of the infection from the premises. A material advance in the more effective control of hog cholera has recently been obtained through improvements in the manufacture of anti-hog-cholera serum. The improvement consists chiefly in processes for clarifying and pasteurizing the serum, operations that improve its keeping qualities, and aid in its successful use under the wide variety of conditions. The quantity of clear serum produced during the last year was approximately one-third greater than in the previous year. Federal veterinarians, cooperating as formerly with practicing veterinarians and State authorities, continue to aid farmers in the control of hog cholera by investigating the cause of outbreaks, holding autopsies, making diagnoses, and giving helpful counsel.

ABORTION DISEASE

Probably the most serious malady confronting cattle owners, particularly dairymen, is infectious abortion. Through independent efforts and in cooperation with eight State experiment stations and universities, the U. S. Department of Agriculture has continued its search for improved means of combating this malady. Results thus far have shown the value of sanitary procedures in the management of herds and have indicated that vaccination with cultures of low virulence serves a useful purpose when other means of control are impracticable. Scientific research has

continued also to show the undependability of chemical preparations for the treatment of abortion-affected cattle.

CONTROL OF INTERSTATE SHIPMENTS OF LIVESTOCK

The spread of animal diseases in the United States is prevented to a large degree by Federal control of interstate transportation of livestock. Employees of the Bureau of Animal Industry regularly inspect the millions of animals shipped to market centers from which they are often redistributed for feeding and breeding purposes. These employees supervise the dipping of livestock infested with certain injurious parasites and also require the immunizing of large numbers of hogs as a safeguard against the spread of hog cholera. In addition, there is official supervision of the sanitary condition of railroad stockyards. Large numbers of cars that have carried animals affected with communicable diseases are cleaned and disinfected under official supervision. Regulations that require the proper feeding, watering, and resting of livestock while in transit are instrumental also in maintaining the vigor of animals and their resistance to certain maladies, such as shipping fever.

PREVENTIVE VETERINARY MEASURES

The results of Federal research for the prevention and control of animal diseases have been made the basis for several systems of livestock management. The procedures involve recommended sanitary practices that stop the life cycle of injurious parasitic enemies or that bar the entrance of diseases caused by bacteria and viruses. Other systems of management include precautions against losses caused by stock-poisoning plants. The recommendations of the Federal Bureau of Animal Industry along these lines have been widely disseminated through publications, radio programs, exhibits, and other informational services.

DISEASES OF PLANTS

DISEASES OF PLANTS

BY NEIL E. STEVENS

BUREAU OF PLANT INDUSTRY, DEPARTMENT OF AGRICULTURE

EPIDEMICS

Bacterial Wilt in Corn.—The outstanding event in the realm of plant diseases in the United States during the past year was an epidemic of bacterial wilt of sweet corn. This disease is sometimes referred to as Stewart's disease because it was first described by Dr. F. C. Stewart on Long Island. At that time he reported it as so destructive during the preceding few years, particularly during 1897, that occasionally an entire crop was ruined, losses from 20 to 40 per cent being frequent. During the intervening period the disease has been the subject of several investigations, and commercial losses have been common in the more southerly sweet corn growing regions. In Maryland, so susceptible a variety as Golden Bantam has been largely abandoned for canning because of losses due to this disease.

During 1930 and 1931, bacterial wilt was unusually severe in many localities and during the past year, 1932, it reached a degree of severity and extent of distribution in the northern States that probably has not been equalled since Stewart published his original account of the disease. In Pennsylvania, for example, losses of 65 to 90 per cent on early varieties of sweet corn were noted in certain localities. In New York the disease was very severe, reaching 40 to 60 per cent infection on Long Island. In Illinois losses varied from 90 per cent in the early market varieties to 30 per cent in the later canning varieties. Associated with the great severity of the disease in these States was the unusual northward extension of the disease. It was found doing commercial damages in Connecticut for the first time in the history of plant pathology, and in Massachusetts, even in the northern tier of counties. In Michigan the disease was wide spread, occurring as far north as Oceana

County on the west side and Alpena County on the eastern side.

Tobacco Downy Mildew. — The year 1931 recorded the first outbreak of downy mildew of tobacco since 1921. Although in that year the infection spread to tobacco seed beds in various States from Louisiana to Maryland, the actual commercial loss was relatively slight. In 1932, however, the downy mildew appeared much earlier, being found in Georgia on volunteer plants in January. The disease spread throughout the tobacco growing regions of Florida, Georgia, South Carolina, and North Carolina. Scattering infections were reported in Virginia, and Maryland, as well as one case in southern Pennsylvania. This year the actual loss of plants was very great in Georgia causing both reduction of acreage and uneven stands with resulting poor quality in many fields.

PLANT PATHOLOGY AND THE CONSUMER

During the period of the World War the emphasis in plant disease studies was largely on reducing production losses to the end that larger food supplies might be available. In the popular mind, plant pathology is still associated chiefly with crop production. Actually, however, studies of plant disease control in this country have long been to a considerable degree directed, and in recent years have been increasingly directed, toward the study of reduction of those losses which fall chiefly on the consumer: that is, losses which occur in transit, in storage, on the market, and in the home. Formally organized projects for the study of "Market Pathology" and "Storage and Transit" problems have been in existence for some years. The study of transportation problems is of necessity largely in the hands of the Federal Department of Agriculture. But inevitably a large part of the practi-

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cal results of the work of State as well as Federal pathologists actually redounds chiefly to the benefit of the consumer since on him many of the losses due to improper disease control in the field inevitably fall.

DEVELOPMENTS IN PLANT DISEASE CONTROL

The effect of abnormal atmospheres on the growth of fungi and on the keeping quality of fruit and vegetables has been a matter of discussion for more than a century, and beneficial effects from different types of gas storage have often been reported. During the last 12 or 13 years, there has been made by certain investigators associated with the Food Investigation Board of England, an extensive study on the effects of carbon dioxide on fruits. A modification of "gas storage" to meet transportation conditions is reported in a recent bulletin of the United States Department of Agriculture which discusses the use of solid and gaseous carbon dioxide as a supplementary refrigerant of various fruits and vegetables in transit.

Experiments in the use of the well-known insecticide, Naphthalene, as a soil fungicide especially in green-houses, were also reported. Both these methods of control are still admittedly in the experimental stage but serve to illustrate the possibility of further progress in disease control, sometimes by new applications of old and well known chemicals.

On October 1, a Division of Plant Pathology was formally opened in the Rockefeller Institute of Medical Research at Princeton. The name of the laboratory and accessory buildings have accordingly been changed to the Department of Animal and Plant Pathology.

CHANGES IN QUARANTINE REGULATIONS

Perhaps the most significant change in the plant quarantine regulations is a revision of the white-pine blister-rust quarantine regulations which adds five States to the list of States designated as infected with the rust. These are Iowa,

Maryland, Ohio, Virginia, and West Virginia. Since the District of Columbia is surrounded by infected States, it is also classed as infected.

The new regulations will widely increase the market for 5-leaved pines raised under conditions in which they are protected from rust infection. The embargo which prohibited the shipment of such pines from infected to non-infected States is removed, and the Federal pine-shipping permits which heretofore authorized shipments only between infected States may now be used for shipments to non-infected States also. The change is based on the satisfactory results of the protective work carried out around nurseries during the past several years.

PUBLICATIONS

During the year, the Bureau of Plant Industry initiated a series of publications under the general title "Market Diseases of Fruits and Vegetables." Two numbers have already been issued. An introductory notice states that the series is designed "to aid in the recognition and identification of pathological conditions of economic importance affecting fruits and vegetables in the channels of marketing, with a view to facilitating the market inspection of those food products and reducing and preventing losses from such conditions." These publications which are elaborately illustrated with colored plates furnish an indication of the increasingly important place which market diseases are assuming in American plant pathology.

Indicative of another trend, that is, the increasing interest in diseases of ornamentals of all kind, is the publication of a manual on *Insects and Diseases of Ornamental Trees and Shrubs* by E. P. Felt and W. H. Rankin. This publication is significant also in that it unites in a single volume the available information on insect pests and that on fungus and other diseases. This method of arrangement has often been used in farmers' and extension bulletins but is a new departure in American text and reference books.

PESTS OF PLANTS

PESTS OF PLANTS

By J. A. HYSLOP

BUREAU OF ENTOMOLOGY, DEPARTMENT OF AGRICULTURE

GRASSHOPPERS

The abnormally mild temperatures that prevailed during the winter of 1931-32 over the greater part of the Eastern and Southern States, followed by severe freezing in March, were probably responsible for many unusual insect developments. The grasshopper infestation in the Great Plains was more wide spread than it was in 1931 but, in general, less severe. Rainy cool weather in May and June in the southern part of this area resulted in a rank growth of wild vegetation, reducing the damage to cultivated crops. This weather was unfavorable to the development of young hoppers, and later parasitic flies and sometimes a fungus disease, further reduced the grasshoppers. The most seriously infested areas this year were eastern North Dakota, Central South Dakota, northwestern Minnesota, and to a lesser extent northern Wisconsin and northern Michigan. Another section of somewhat severe damage was reported from north central Nebraska. In the Gulf region and along the south Atlantic seaboard, the American grasshopper (*Schistocerca americana* Drury) became unusually abundant late in the season.

EUROPEAN CORN BORER

The European corn borer did not spread so far as usual this year. Newly infested townships in Indiana, Maryland, Kentucky, Pennsylvania and Virginia, however, were found this fall. The corn borer is now known to infest portions of the New England, Middle Atlantic, and East Central States, westward to Wisconsin and Indiana, and southward to Kentucky, West Virginia, and the eastern shores of Maryland and Virginia, and the eastern corn growing provinces of Canada.

MISCELLANEOUS INFESTATIONS

The Hessian fly passed the winter with but little mortality over the

greater part of the winter wheat belt. Very cold weather during the middle of March, however, was disastrous to the pupae in the eastern part of this area. From Illinois westward a very high percentage survived and during the spring heavier infestations occurred throughout this belt than had been recorded in several years.

The chinch bug was troublesome much farther north and east than is usually the case. Reports of damage were received from Pennsylvania, eastern Ohio, Michigan, Wisconsin, southern Minnesota, and Nebraska, in addition to the normal chinch bug territory which extends from eastern Kansas into northwestern Ohio. It appears that this insect is entering hibernating quarters in larger numbers than it has for several years.

The alfalfa weevil was found well established during May in the San Joaquin Valley in California, in which state this insect was only previously recorded from a few isolated localities, from Lassen to Mono Counties along its eastern border.

The green bug developed in threatening numbers during the late winter in the South Atlantic States and Gulf region. This, however, did not develop into a serious outbreak, although local outbreaks were reported from west-central Missouri, northwestern Mississippi, and south-central Pennsylvania.

The codling moth survived the winter successfully. As the season advanced it was reported as being very numerous throughout the greater part of the country. In Illinois it was more injurious than it has been any time during the past 10 years. Cool weather during June materially retarded the infestation in western Washington, but later the infestation was heavier than usual in that State.

The San Jose scale continued to increase from the North Atlantic

States, westward to Illinois, Michigan, and Missouri.

The plum curculio emerged from hibernation in the southern part of the Atlantic seaboard later than it had in many years. Early in the season it was but moderately abundant over the east Central States, and somewhat more abundant than usual from Kentucky to Mississippi. It apparently went into winter quarters this year in greater numbers than it did in 1931.

The oriental fruit moth emerged late this spring. In the east Central States it seems to be increasing in numbers and for the first time was recorded as generally distributed over northwestern Arkansas and eastern Kansas. With the short crop of peaches that matured over the upper part of the southeastern peach belt, the damage was much more serious than would normally have been the case.

The Japanese beetle was discovered this year at several points outside of the previously regulated area. Among these were two points in Maine, six in New Hampshire, three in Vermont, three in Ohio, one in Michigan, three in West Virginia, three in North Carolina and one in South Carolina.

The vegetable weevil continued to spread northward and eastward during the year. It was found to be infesting the entire northwestern quarter of Louisiana, southeastern corner of Arkansas, and in addition to the territory already known to be infested, to occur well over the western border of Georgia. It was also found in one county farther west in Texas.

The Mexican bean beetle did not very materially advance its known range. It was, however, found for the first time in the States of New Hampshire, Maine and Illinois, and has moved somewhat farther northward in Vermont.

The Harlequin bug was reported as destructive in Maryland, West Virginia and southeastern Iowa, which points are considerably north of the normal range of this pest.

The banded cucumber beetle was decidedly on the increase in the eastern part of its range, having been reported as troublesome not only in the Gulf region but in South Carolina, Florida, and Georgia.

The boll weevil passed the winter over most of the cotton belt in greater numbers than it has in the past seventeen years. Very heavy damage to the early crop occurred throughout the South with the important exception of western Oklahoma and western Texas.

The pink boll worm was discovered this spring in southern Florida and in the autumn a very light infestation was found at three points in northern Florida. This is the first time this insect has been found in the eastern part of the cotton belt.

The elm leaf beetle appeared in destructive numbers at many points throughout the Middle Atlantic, New England, and Central States, and there were isolated outbreaks in Kansas and along the Pacific Coast.

The gladiolus thrips was quite destructive to gladiolas at many points throughout the Atlantic States westward to Tennessee, Illinois and Minnesota.

Screw Worms.—An unprecedented outbreak of screw worms was reported during October in the Yazoo-Mississippi Delta in Mississippi, occasioning losses in the livestock business of that section.

ROCKY MOUNTAIN SPOTTED FEVER

Forty-one cases of Rocky Mountain spotted fever was reported from the States of Maryland and Virginia up to the middle of August of this year. Heretofore this dread disease of man borne by a tick was only known from the northern Rocky Mountain region.

AGRICULTURAL MARKETING

AGRICULTURAL MARKETING

BY NILS A. OLSEN

CHIEF, BUREAU OF AGRICULTURAL ECONOMICS, DEPARTMENT OF AGRICULTURE

GENERAL

The collapse of agricultural prices since 1929 makes it doubly desirable to conceive broadly the field of agricultural marketing. A major purpose in marketing efforts is to aid agriculture to realize equitable returns. Agricultural marketing must concern itself, therefore, with influences, many of which lie outside the field of marketing as commonly conceived, that affect the distribution of farm products and the level of agricultural prices. Trends in competition and supplies, effect of business conditions upon the consumption of farm products, tariffs and other barriers to trade, financial and currency troubles, money and credit influences upon the price level, and price lifting devices, may affect the marketing of farm products and returns to growers much more than do the normal processes of marketing.

THE COLLAPSE OF AGRICULTURAL MARKETS

Prices of agricultural products are now only half the pre-war level. This is not due primarily to excessive production in this country. The agricultural output since 1924 has been relatively stable, and yet since 1929 prices of farm products have dropped to levels unmatched in decades. It is true that efficiency in agricultural production has continued to improve. The total area in farm crops has not materially increased since the World War, and the number of people employed in agriculture has declined, and yet production per person employed has increased around 20 per cent. Production in foreign countries, however, has expanded considerably more. The pre-war output was reached in 1925 and this level has since been maintained, and the huge crops of 1928 and 1929 no doubt contributed to the price decline. During the past five years world production of the leading crops was 24 per cent over

pre-war levels, while world population was only 18 per cent larger. The explanation of the price debacle, in short, is not found primarily in surplus supplies but must be sought in the various influences that have undermined the domestic demand and the foreign outlets for our products, money, credit and other factors of that nature. Between the boom years 1923 and 1929 industrial activity in the United States expanded 18 per cent and the national income 20 per cent. Since the summer of 1929 the production of factories and mines has shrunk 53 per cent, and total pay-rolls 61 per cent; the unemployed in the fall of 1932 numbered over 10,000,000 or more than 25 per cent of the working population outside of agriculture; and the earnings of the employed were curtailed by wage reductions and shorter hours. Lessened purchasing power among large segments of the population has resulted in a shift to cheaper and bulkier foods, a reduced consumption of even the staple foods, and a substantial drop in the consumption of the fibre crops.

AGRICULTURAL DISPARITIES

Developments since 1929 have placed agriculture in an increasingly difficult position. The purchasing power of farm products in December, 1932 was one half of what it was before the World War. Farm mortgage indebtedness has increased almost three times and farm taxes a little less than two and one-half times, since pre-war days. Moreover, all farm land values have dropped to 11 per cent below pre-war levels, and foreclosures and farm tax delinquencies have proceeded at an accelerated pace.

PRICE SUPPORTING DEVICES

One of two things must happen; either agricultural prices and incomes must rise or debts, taxes, and operat-

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ing and living costs must come down. Marked emphasis continues to be placed on the adoption and use of price supporting devices. Equalization fee, debenture, and stabilization have become almost household words during the past ten years. Price stabilization through marketing control of supplies has been put to the test and found wanting in the face of the gigantic forces operating in the situation. Domestic allotment with limitation upon production is having its day in court. Inflation of the general price level through credit and monetary measures is also looming large in the thought of the day as a means of righting the economic situation.

RESTORING MARKETS AND PURCHASING POWER OF CONSUMERS

The drop in gross farm income from \$12,000,000,000 in 1929 to \$5,000,000,000 in 1932 without any material change in the volume of agricultural production emphasizes the need of restoring industrial employment and the purchasing power of urban consumers who constitute between half and two-thirds of our population. Evidence is not lacking that the foundation is being laid for the gradual resumption of industrial activity here and abroad. Some further reductions in cost of production and a gradual renewal of confidence should result in stimulating a revival of industrial activity, and increased employment and purchasing power for both industrial and agricultural products.

REOPENING FOREIGN MARKETS

The reopening of foreign markets to our farm products is now receiving widespread thought. The value of our agricultural exports during the past fiscal year fell to \$750,000,000 compared with an average of \$1,900,000,000 in the years 1924-1928. Since we now export less than 10 per cent of our agricultural products it has been suggested that we return to a domestic basis and secure for agriculture the maximum benefits from the tariff. This is not likely of attainment in the near future since it would require the

elimination from our agricultural plant of approximately 60,000,000 acres now used in producing the crops we export. We have, in short, too large a stake in foreign markets to give them up. These foreign markets for agricultural products, however, have been seriously damaged by the breakdown in the delicate mechanism of international trade. The means of maintaining the balance of international payments have been seriously curtailed. Tariff and other trade barriers, in part the outgrowth of the intense nationalism of the day, in part the result of financial and monetary difficulties, impede the normal exchange of products. International debts, and the interruption in capital movements have widened the gap in international payments and the gold movements have been such as to undermine the gold standard in many countries, depreciate the value of currencies and still further demoralize international trade. It is contemplated that the forthcoming World Economic Conference will deal with the various elements in this complicated situation.

ADJUSTING SUPPLIES TO DEMAND AND REDUCING COSTS

While special efforts are thus being directed at critical spots in the market and price situation, the program for adjustments in the quantity and quality of supplies in relation to the demand, as well as the development of more efficient methods and lower costs of production and marketing, is going forward. The National outlook service of the Department of Agriculture and the Land Grant Colleges is gaining increased acceptance and use, and is leading to desirable adjustments in crop and livestock production on individual farms. Reduction in cash outlays and other economies are bringing about some reduction in costs of production. At the same time a national land utilization program has been crystallized into definite form as a result of the National Conference on Land Utilization held at Chicago in 1931, and through the National Land Use Planning Committee and the Advisory and Legislative Com-

AGRICULTURAL MARKETING

mittee on Land Use created as a result of that conference plans and policies for the effective use of our national land resources are being developed and translated into action. The agricultural price debacle of course has seriously affected the distributing machinery of the country. Marketing agencies with relatively heavy overhead costs and outstanding accounts have in many instances found it difficult to compete with smaller and less heavily burdened units. Costs of distribution, however, are still abnormally high in relation to prices received by producers and to consumer incomes, and it is being increasingly realized that downward adjustments in transportation and distributing costs generally will be necessary if price levels do not improve substantially. With the assistance of the Federal Farm Board further progress has been made in organizing farmers cooperatively for the marketing of their products. It is reported that there are now in the neighborhood of 12,000 cooperative associations in this country, with a membership of about one-third of all farmers, and accounting for around 20 per cent of farmers' annual cash income.

GOVERNMENT SERVICES IN AGRICULTURAL MARKETING

Meanwhile the informational, research, standardization, and regulatory services of the Department of Agriculture relating to the marketing of farm products have been maintained at a high level of efficiency even with considerable reductions in operating resources. The newly expanded foreign agricultural service is now supplying current estimates of production and prospective supplies in competing countries, reports on market conditions in foreign lands,

and appraisals of longer time trends in competition and demand. It is thus meeting an important need in our efforts to expand foreign outlets. Some progress has been made in extending the use of cotton in curing concrete, in shipping fruits and vegetables in open-mesh cotton bags and in other like uses. Owing in part to the breakdown in the rural banking structure there has been a marked expansion in the use of Federal warehouse receipts in financing the marketing of agricultural products. It has enabled local banks and distributors to avail themselves of metropolitan as well as governmental banking resources. The Federal warehouse receipt has been helpful in opening up the acceptance money market for financing the marketing of agricultural products at materially lower interest costs.

Federal credit with which to market agricultural products recently has been expanded somewhat. In addition to the advances made by the Federal Farm Board and the Intermediate Credit Banks the Reconstruction Finance Corporation has been authorized to extend marketing credit under the terms of the Emergency Relief and Construction Act of 1932. The Corporation is authorized to make loans for the purpose of financing the sale of surplus agricultural products in foreign countries. So far no loans have been made under this provision. The disparity in the price of wheat in this country and in foreign markets has prevented sales of this commodity. Another provision of the Act authorizes loans for the purpose of financing the carrying and orderly marketing of agricultural commodities and livestock produced in the United States. The Corporation had authorized as of Nov. 30, under this section, loans aggregating somewhat over \$52,000,000.

XI. AGRICULTURE AND ALLIED INDUSTRIES

HORTICULTURE

By WILLIAM A. TAYLOR

CHIEF, BUREAU OF PLANT INDUSTRY, DEPARTMENT OF AGRICULTURE

ORCHARD AND VINEYARD STATISTICS

American horticulture during 1932 has suffered in common with other types of agriculture. Very low commodity prices have prevailed largely without respect to the size of the

crop. Orchard and vineyard statistics of the fifteenth decennial census become available during the year. The trends shown by some of the more significant items follow in comparison with 1920.

CENSUS FIGURES SHOWING TRENDS IN FRUIT TREE POPULATION

Kind of fruit	Trees not of bearing age		Trees of bearing age	
	1930	1920	1930	1920
Apples.....	27,455,303	36,195,085	88,848,970	115,309,165
Pears.....	5,228,239	6,052,247	16,042,533	14,647,412
Peaches.....	20,134,313	21,617,862	58,911,983	65,646,101
Plums and prunes.....	4,514,409	9,375,268	29,399,411	20,452,293
Cherries.....	4,615,286	3,694,531	8,381,472	10,787,751
Oranges.....	7,595,102	5,227,917	24,363,212	14,439,146
Grapefruit.....	4,127,238	1,135,024	5,106,519	1,938,453
Lemons.....	342,640	813,361	2,823,794	2,921,608
Avocados.....	412,715	75,723	262,483	39,687
Pecans.....	3,729,170	2,257,288	5,417,905	2,672,191
Grapes (vines).....	24,653,072	27,394,469	342,191,490	225,754,285

Apple Trees.—The trends indicated in most of the items appear within the range of normal shifts without unusual significance. In certain instances, however, there are decreases as well as increases in tree population, significant beyond what is revealed in the figures alone. Decreases of some 8,700,000 apple trees not of bearing age and about 26,450,000 trees of bearing age represent large proportionate reductions, but small compared with the decade 1910 to 1920 as shown by the fact that the Thirteenth Census (1910) reported 65,791,848 apple trees not of bearing age and 151,322,840 of bearing age. The decreases in the number of apple trees during the past two decades at face value, would appear to indicate an alarming decline in the apple industry but during the same period there has been a tendency towards actual increased production. Three factors are involved in this situation: (1) The decrease in number of trees has come about largely through the elimination of poorly located and poorly cared for commercial orchards, non-productive farm orchards and

others, the crops from which were unimportant from a nation-wide standpoint; (2) in certain areas where the industry is highly concentrated large numbers of trees reported in 1910 and 1920 as of non-bearing age have since come into heavy production; (3) commercial orchards generally are given better care than formerly, thus tending to raise their average yield.

Peaches and Citrus Fruits.—The reduced number of bearing peach trees is accounted for in part by the elimination of trees in Georgia infected with the phony disease of the peach, while increases in grapefruit and orange trees are explained largely in the recent extensive plantings made in Texas not hitherto included in the citrus-producing areas of the country.

Grapevines.—A rather surprisingly large increase is to be noted in the number of bearing grapevines. A study of details not given there shows a heavy increase in California, as would be expected, but there has also been a considerable expansion in other commercial grape-producing states.

FRUIT AND OTHER CROPS

Apples.—The preliminary estimate of the commercial apple crop is 28,385,000 barrels as compared with 34,592,000 in 1931; the total crop, 138,976,000 bushels, with 202,415,000 bushels in 1931. The yields for 1932 are considerably below the average for the years 1924-1928.

Pears.—An estimate near the close of the harvest season of about 22,200,000 bushels is slightly more than 1,000,000 bushels less than in 1931.

Peaches.—The October estimate of 46,267,000 bushels is in striking contrast with 76,586,000 bushels in 1931, the largest crop on record. The latter figure includes some 12,000,000 bushels not harvested on account of market conditions. Small as was the 1932 crop some 2,500,000 bushels remained unharvested for lack of market, mostly canning and drying varieties in California.

Grapes.—The prospective crop of about 2,140,000 tons compares with 1,620,000 tons in 1931.

Pecans.—The crop as a whole was especially unsatisfactory, the 53,700,000-pound yield being some 23,000,000 pounds less than in 1931. While there were wide departures both above and below the 1931 crop in states where wild trees largely comprise the source of supply, the failure of the nuts to fill properly, due to drought, prevalence of disease, and other causes, in many of the orchards planted to selected varieties, characterizes the season of 1932 as particularly adverse in those regions where orchard plantings rather than seedlings prevail.

Berries.—Seasonal conditions are fully as likely to affect crops and prices as any foresight or planning on the part of the growers. The season of 1932 was reported as a most disastrous one for the strawberry growers in Louisiana, the receipts declining to an amount estimated at less than \$3,000,000 in contrast to receipts of \$8,000,000 to \$9,000,000 in 1931. Extremely low prices due largely to the poor quality of the berries caused more than 1,000 carloads in the Louisiana production centers to remain unshipped.

Potatoes.—The estimated potato crop in 1932 was 359,000,000 bushels which is 16,000,000 bushels less than in 1931 and about 2,000,000 bushels less than the average for the 5-year period 1924-28. Notwithstanding this relatively low yield, prices dropped in some regions during the harvest period as low as 25 and 30 cents f. o. b. per hundred in bulk. There was one foreign plant exploration expedition that occupied the first half of the year organized specifically in the interests of potato breeding. Two specialists spent several months in Peru and Chile studying the wild relatives of the cultivated potato to obtain material of possible value in the breeding of disease-resistant potatoes. This expedition was successful as regards the amount of plant material obtained.

PLANT BREEDING RESEARCH

In the effort to improve fruits and vegetables, to develop varieties resistant to disease, and better adapted to particular conditions or uses, the accomplishments of plant breeders are becoming more conspicuous yearly. While a single improved variety may result only after years of continuous effort on the part of a plant breeder and is therefore not assignable to the accomplishments of any one calendar year, several typical instances of this character recently accomplished are of interest: In the small fruit breeding work of the Department of Agriculture, the Van Fleet raspberry, a variety suitable for home use south of the range of adaptability of the older sorts; the Blakemore, Bellmar, Southland, Redheart, Fairfax, Dorsett and Narcissa strawberries, each of value in some special way, and the Brainerd blackberry, a particularly productive sort have been disseminated; in vegetable variety improvement by breeding, the Katahdin variety of potato, a productive sort recently introduced and resistant to certain serious diseases; the Marglobe, Break O'Day, and Pritchard tomatoes which because of their disease resistance, and merits otherwise have largely superseded other sorts in some regions; and a number of strains of disease resistant

XI. AGRICULTURE AND ALLIED INDUSTRIES

lettuce without which the lettuce industry of the Imperial Valley in California amounting to thousands of carloads annually could probably not have continued, have been introduced. In coöperation with the Wisconsin Agricultural Experiment Station, cabbage variety strains resistant to the cabbage yellows disease have been developed greatly to the benefit of growers in several extensive cabbage producing areas. A number of State Agricultural Experiment Stations have also been very active in the development by breeding of new and improved fruit varieties. The New York station has developed the Cortland, Early McIntosh and other varieties of apples, also the Newburgh raspberry, various grapes and other fruits. The Minnesota station, the Latham and Chief varieties of raspberries which have largely superseded the Cuthbert, and other varieties of long standing in many parts of the East, besides developing several varieties of apples, plums and pears especially adapted to the upper Mississippi Valley conditions. The Iowa station has put out varieties of apples, and pears, likewise adapted to climatic conditions not favorable to the older eastern fruit varieties. The New Jersey station has been espe-

cially active in peach breeding and has put out the Golden Jubilee, Eclipse and Primrose, and other varieties are still under test which possess much promise to eastern peach growers, with possibilities of a wide range of adaptability, not to mention the equally worthy work of other experiment stations along similar lines. Notable is the discovery of what has been termed metaxenia, which is the immediate effect of pollen on the resulting fruit. It is of large practical importance in date culture. It is desirable that the fruit should ripen over a comparatively short period rather than over a long period as is normally the case with some of the most valuable varieties. It has been determined when the date blossoms are pollinated with pollen from certain male trees, the ripening of the fruit resulting therefrom is delayed; the use of pollen from certain other males hastens the ripening. The date normally blossoms over a long period, and the blossoms are pollinated by hand. Hence if the early blossoms are pollinated with pollen that delays ripening and the late blossoms with pollen that hastens ripening, the result is that most of the fruit matures during the short period that is most to be desired.

FISHERIES

By LEWIS RADCLIFFE

DEPUTY COMMISSIONER, U. S. BUREAU OF FISHERIES

FINANCIAL AND ECONOMIC FEATURES

The fisheries of the United States in common with other producers of foodstuffs suffered severely from the extensive decline in prices. Temporary scarcity of some staples tended to increase costs of production, adding to the difficulties of the operators. Advances in quick freezing, the packaging of fresh and frozen products, and other improvements should in time benefit the industry. In 1930, the fisheries of the United States and Alaska yielded 3,286,580,000 pounds,

with a value of \$109,349,000 to the fishermen and gave employment to 204,000 persons directly dependent on the fisheries for a livelihood. In addition, it is estimated that about 300,000 persons are employed in manufacturing products and articles used in the fisheries, such as cordage manufacture, boat building, fishing gear, etc. The pack of canned fish in 1931 amounted to 506,414,000 pounds, valued at \$62,949,000; packaged fish (fresh, frozen and smoked), 65,551,000 pounds, valued at \$9,224,000; frozen fish, 112,257,000 pounds with

FISHERIES

an estimated value of \$11,000,000; and, the value of by-products, \$16,565,000. Our imports of fishery products for consumption were valued at \$43,033,000 and our exports at \$11,574,000.

MANUFACTURED OUTPUT

Canned Products.—During 1931, 412 establishments were engaged in the canning of fishery products in the United States and Alaska. Total production amounted to 12,580,826 standard cases (506,414,020 pounds net weight), valued at nearly \$62,949,000. Salmon canned on the Pacific Coast, mainly Alaska, accounted for 6,740,045 standard cases (323,522,160 pounds), valued at \$38,083,176. The production of canned sardines amounted to 2,598,815 standard cases (104,378,736 pounds), valued at \$7,362,276. The production of tuna and tunalike fishes amounted to 1,216,976 standard cases (29,207,424 pounds), valued at \$7,279,392. The remainder of the production consisted principally of shrimp, clam products, and oysters.

By-Products.—By-products of fisheries valued at more than \$16,565,000 were manufactured in 1931. The most important were 84,183 tons of marine-animal meals and scrap, with a value of \$2,986,395; fresh-water mussel shell valued at \$4,970,240; marine-pearl shell products, also consisting of buttons and novelties products, such as buttons and novelties, valued at \$3,552,903; 8,565,651 gallons of marine-animal oils, valued at \$1,619,936; and 306,229 tons of oyster-shell products, such as crushed shell for poultry and lime, valued at \$1,992,024. The remainder, valued at \$1,443,557, consisted of liquid glue, herring skins and scales, shark fins, fins, and meat, agar agar, pickled whale meat, whale-bone, and isinglass.

Cured Products.—The production of cured fishery products in the marine and lake sections of the United States and Alaska in 1930 amounted to 124,496,656 pounds, valued at \$16,837,406. Of this amount 80,853,390 pounds, valued at \$6,072,231 were salted; 38,594,757 pounds, valued at \$10,177,863 were smoked; 4,760,906 pounds, valued at \$550,021 were dried;

and 287,603 pounds, valued at \$37,291 were spiced. Mild cured salmon was the most valuable salted product, amounting to 10,157,175 pounds, valued at \$2,065,553. Cod and Scotch-cure Alaska herring were other important salted products. Among the smoked products, salmon, including kippered salmon, was the most important item with respect to value, amounting to 10,467,045 pounds, valued at \$3,568,244. Cisco, chubs, and tullibees and sturgeon were other important smoked products. Shrimp was by far the most valuable dried product, accounting for 1,740,329 pounds, valued at \$368,684.

Packaged Fresh, Frozen, and Smoked Fish.—During 1931 packaged fresh, frozen, and smoked fish were produced in 158 plants, operated in 15 states. The output amounted to 65,551,000 pounds, valued at \$9,224,000.

Frozen Products.—In 1931 the freezing plants in the United States and Alaska, reporting their activities to the Government, packed 112,257,000 pounds of frozen fishery products, with an estimated value in the cold-storage warehouses of \$11,000,000. The average monthly holdings amounted to 54,999,000 pounds during 1931.

NEW ENGLAND STATES

In 1930 the fisheries of New England employed 17,077 fishermen. The catch was the largest on record, amounting to 701,350,979 pounds, valued at \$27,493,479. In 1931 landings of fish by American vessels at Boston, Gloucester, and Portland, Me., amounted to 263,684,584 pounds as landed, valued at \$9,249,257. Had-dock landings amounted to 132,845,465 pounds. The catch of the mackerel fishery in 1931 amounted to 36,483,472 pounds. In 1931 the packaged-fish industry centering at Boston, Gloucester, and Groton, Conn., had an output of 54,345,199 pounds, valued at \$7,502,657. The sardine cannery in Maine packed 885,408 standard cases of sardines valued at \$2,647,187 during 1931.

MIDDLE ATLANTIC STATES

In 1930 the fisheries of New York, New Jersey, Pennsylvania, and Dela-

XI. AGRICULTURE AND ALLIED INDUSTRIES

were employed 10,605 fishermen. The catch amounted to 193,867,981 pounds, valued at \$13,063,672. Landings of fish at New York City and Groton, Conn., amounted to 51,854,000 pounds in 1931. On the Hudson River, the shad fishery was carried on by 252 fishermen in 1931. The catch amounted to 125,943 shad, weighing 414,611 pounds, and valued at \$49,781 to the fishermen.

CHESAPEAKE BAY

In 1930 the fisheries of Maryland and Virginia employed 19,391 fishermen. The catch amounted to 316,392,924 pounds, valued at \$11,472,050. The menhaden industry of Virginia produced 14,325 tons of dry scrap and meal valued at \$698,439 and 1,682,733 gallons of oil valued at \$338,377. The crab industry had a good year in 1930 with a production of 68,759,653 pounds, larger than in any previous year. The oyster industry had a production of 44,959,170 pounds in 1930. In 1931 the shad and alewife fisheries of the Potomac River were prosecuted by 681 fishermen. The catch amounted to 625,499 shad, weighing 2,061,036 pounds, valued at \$193,505 to the fishermen.

SOUTH ATLANTIC AND GULF

In 1930 the fisheries of North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, and Texas employed 23,590 fishermen. The catch amounted to 417,759,466 pounds, valued at \$11,064,819. The production of canned shrimp in 1931 amounted to 821,375 standard cases, valued at \$3,982,247. The production of canned oysters in 1931 amounted to 298,344 standard cases, valued at \$922,720. In 1931 the quantity of sponges sold on the exchange at Tarpon Springs, Fla., amounted to 372,771 pounds, valued at \$609,773.

PACIFIC COAST

In 1930 the fisheries of Washington, Oregon, and California employed 19,574 fishermen. The catch was 833,388,643 pounds, valued at \$23,064,140. In 1931 the pack of salmon was 1,336,234 standard cases, valued at \$8,986,308. In 1931 the pack of sar-

dines in California was 1,713,407 standard cases, valued at \$4,715,089. The production of canned tuna in 1931 was 1,216,976 standard cases, valued at \$7,279,392. In 1931 the total catch of halibut by United States and Canadian vessels amounted to 42,845,000 pounds, valued at \$2,842,000.

LAKE STATES

In 1930 the lake fisheries (Lakes Ontario, Erie, Huron, Michigan, Superior, and Namaken, Lake of the Woods, and Rainy Lake) of the United States and Canada produced 121,532,395 pounds of fish and shellfish. Of the total, the United States accounted for 94,947,642 pounds, valued at \$6,050,267. This catch was made by 6,980 fishermen. The Canadian catch amounted to 26,584,753 pounds. Only 347,356 pounds of ciscoes were taken in the United States in 1930 as compared with 35,000,000 pounds in 1918.

ALASKA

Fisheries.—The fisheries of Alaska during 1931 employed 22,577 persons, of whom 8,914 were fishermen, 11,995 were employed in the wholesale and manufacturing industries, and 1,668 in transporting fishery products. The catch in the round weight amounted to 598,124,566 pounds, valued at \$10,043,366. Of the total catch, 467,664,391 pounds, valued at \$7,757,966, consisted of salmon; 128,290,715 pounds, valued at \$2,164,986, other fish; and 2,169,460 pounds, valued at \$120,414, shellfish. For the first time since the first whaling plant was established in Alaska in 1907, there was a complete suspension of whaling operations in 1931.

There were 226 establishments (exclusive of duplication) engaged in the fisheries trade in Alaska in 1931. The output of these establishments amounted to 344,881,702 pounds, valued at \$33,594,752. The salmon industry was by far the most important and produced 274,087,482 pounds of products, valued at \$30,423,401. In value, the halibut industry was next in importance and produced 20,425,633 pounds of products, valued at

FISHERIES

\$1,352,687. The herring industry ranked third and produced 48,151,568 pounds of products, valued at \$1,227,896. Of the remainder, clam and shrimp products were most important in value.

Fur Seals.—The Pribilof Islands fur-seal herd, which is under the jurisdiction of the Department of Commerce, Bureau of Fisheries, now numbers about 1,220,000 animals. It was possible to kill approximately 50,000 surplus males this year without affecting the normal growth of the herd. The skins are sold at public auction for the account of the Government. At the sale held on

June 13, 1932, in New York City, 3,788 black dyed skins and 3,448 logwood-brown dyed skins, a total of 7,236, were sold at a gross price of \$102,328.05. In addition, 444 blue-fox skins were sold for \$8,544.50. The fall sale of fur-seal skins in 1932 was held at St. Louis, Mo., on Sept. 26 and consisted of 15,521 black dyed, 10,157 logwood-brown dyed, and 801 raw skins from the Pribilof Islands, which were sold at a gross price of \$296,604.75. At the September sale, also, there were sold 719 blue-fox and 25 white-fox skins from the Pribilof Islands, which brought \$12,511.50.

FISHERIES OF THE UNITED STATES AND ALASKA, 1930¹

Sections	Fishermen	Fishing vessels	Fishing boats	Persons on transporters	Transporting vessels	Products	
	<i>Number</i>	<i>Number</i>	<i>Number</i>	<i>Number</i>	<i>Number</i>	<i>Pounds</i>	<i>Value</i>
New England States.	17,077	718	8,787	363	150	701,351,000	\$27,493,000
Middle Atlantic States.....	10,605	575	4,050	101	35	193,868,000	13,064,000
Chesapeake Bay States.....	19,391	391	13,820	855	428	316,393,000	11,472,000
South Atlantic and Gulf States.....	23,590	670	14,515	437	185	417,759,000	11,065,000
Pacific Coast States.	19,574	863	7,556	249	99	833,388,000	23,064,000
Lakes States.....	6,980	467	3,879	76	22	94,948,000	6,050,000
Mississippi River States.....	12,310	.....	15,538	27	13	108,171,000	4,385,000
Alaska.....	10,189	690	5,253	1,926	487	620,702,000	12,756,000
Total.....	119,716	4,374	73,398	4,034	1,419	3,286,580,000	109,349,000

¹ All figures are for 1930 except those for the Mississippi River and tributaries. In this section the figures on the catch of mussels are for 1930 and other figures are for 1922.

FISH PROPAGATION

To maintain the stock of fish in our waters, fish propagation is conducted on a large scale by Federal and state agencies. The output of the 84 stations and sub-stations of the Bureau of Fisheries, located in 36 states and Alaska, exceeded 7,000,000,000 and that of the 388 state hatcheries, 4,000,000,000. Expenditures by the states for propagation of fish exceeded \$3,442,000. The combined output of trout and other cold-water game species, many of which are reared to fingerling or larger sizes exceeded 322,483,000 and of the warm water game fishes such as bass, crappie, etc., exceeded 434,200,000. With the continuing drain on the natural

supply, there has been realized the greater need for a wise program of husbandry of our aquatic resources. This involves careful biological studies to determine the condition and trend of each important fishery as a basis for wise regulation and the development of water farming or aquiculture to increase the productivity of water areas. In large measure the states depend upon the National Bureau of Fisheries for the conduct of such investigations.

FISHING TREATIES

A revised convention with Canada for the preservation and development of the halibut fishery of the eastern north Pacific became effective May 9,

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1931. The enabling act putting into effect the provisions of this convention was approved May 2, 1932. Excellent progress has been made in determining the character of regulations needed to prevent further depletion of this important fishery. On March 31, 1932, the American Minister to Switzerland signed a multilateral convention for the conservation of whales on behalf of the United States, and the President ratified the convention June 17, 1932. Before the convention can enter into force, not less than eight members of the League of Nations or non-member States, including Norway, Great Britain and Ireland, must ratify it.

DIVISION XI

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

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| AMERICAN ASSN. OF NURSERYMEN, Louisiana, Mo. | ASSN. OF LAND-GRANT COLLEGES AND UNIVERSITIES, Newark, Del. |
| AMERICAN COUNTRY LIFE ASSN., 375 Lexington Ave., New York City. | BOYCE-THOMPSON INSTITUTE FOR PLANT RESEARCH INC., Yonkers, N. Y. |
| AMERICAN FARM BUREAU ASSN., 58 E. Washington St., Chicago, Ill. | FARMERS' NATIONAL COUNCIL, Bliss Bldg., 35 B Street N. W., Washington, D. C. |
| AMERICAN FISHERIES SOCIETY, 2273 Woolworth Bldg., New York City. | FARM WOMEN'S NATIONAL CONGRESS, Clarksville, Ia. |
| AMERICAN FORESTRY ASSN., 1523 L Street N. W., Washington, D. C. | FEDERATED FARM WOMEN OF AMERICA, 26 Jackson Place, Washington, D. C. |
| AMERICAN GAME PROTECTION AND PROPAGATION ASSN., 233 Broadway, New York City. | INSTITUTE OF AMERICAN MEAT PACKERS, 509 S. Wabash Ave., Chicago, Ill. |
| AMERICAN NATIONAL LIVESTOCK ASSN., Denver, Colo. | INTERNATIONAL FARM CONGRESS OF AMERICA, Continental Bldg., Kansas City, Mo. |
| AMERICAN ORNITHOLOGISTS' UNION, U. S. National Museum, Washington, D. C. | IZAAB WALTON LEAGUE OF AMERICA, THE, 214 W. Huron Street, Chicago, Ill. |
| AMERICAN PHYTOPATHOLOGICAL SOCIETY, Bureau of Plant Industry, Washington, D. C. | JEWISH AGRICULTURAL SOCIETY, INC., 301 E. 14th Street, New York City. |
| AMERICAN POULTRY ASSN., Fort Wayne, Ind. | MIDDLE ATLANTIC FISHERIES ASSN., Bridge Arch No. 11, New York City. |
| AMERICAN SOCIETY OF AGRONOMY, Ames, Ia. | NATIONAL ASSN. OF AUDUBON SOCIETIES, 1974 Broadway, New York City. |
| AMERICAN SOCIETY OF ANIMAL PRODUCTION, Lafayette, Ind. | NATIONAL BOARD OF FARM ORGANIZATIONS, 1731 I Street N. W., Washington, D. C. |
| AMERICAN SOCIETY OF EQUITY, 311 Daily Star Bldg., Minneapolis, Minn. | NATIONAL DAIRY COUNCIL, 307 N. Michigan Ave., Chicago, Ill. |
| AMERICAN SOCIETY FOR HORTICULTURAL SCIENCE, Geneva, N. Y. | NATIONAL EDUCATIONAL AND COOPERATIVE FARMERS' UNION OF AMERICA, 1731 I Street N. W., Washington, D. C. |
| AMERICAN SOCIETY OF MAMMALOGISTS, Johns Hopkins Medical School, Baltimore, Md. | |
| AMERICAN VETERINARY MEDICAL ASSN., 716 Book Bldg., Detroit, Mich. | |

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

NATIONAL FERTILIZER ASSN., Investment Bldg., Washington, D. C.	ORNAMENTAL HORTICULTURISTS, 247 Park Ave., New York City.
NATIONAL GRANGE OF THE PATRONS OF HUSBANDRY, 630 Louisiana Ave., N. W., Washington, D. C.	SOCIETY OF AMERICAN FORESTERS, 839 17th Street N. W., Washington, D. C.
NATIONAL HIGHWAYS ASSN., 18 Old Slip, New York City.	U. S. LIVESTOCK SANITARY ASSN., Livestock Exchange Bldg., Wichita, Kan.
NATIONAL LIVESTOCK AND MEAT BOARD, Old Colony Bldg., Chicago, Ill.	VEGETABLE GROWERS' ASSN. OF AMERICA, c/o F. L. Allen Co., Philadelphia, Pa.
NATIONAL POULTRY COUNCIL, Davisville, R. I.	WOMEN'S NATIONAL FARM AND GARDEN ASSN., 26 E. 35th Street, New York City.
SOCIETY OF AMERICAN FLORISTS AND	

DIVISION XII

MINERAL INDUSTRIES

MINING AND ORE DRESSING

BY CHARLES E. LOCKE

PROFESSOR, MASSACHUSETTS INSTITUTE OF TECHNOLOGY

THE ECONOMIC SITUATION

Depressed Conditions.—A year ago it was stated that 1931 had proved to be even worse than 1930 but that it was felt that perhaps the worst was over. This was a vain hope as 1932 has shown even lower prices, more curtailment and greater distress. Some mines closed, dividends were passed and in general it was not a question of making a profit, but rather to continue operations without incurring too great a loss.

Price ranges of commonly-used metals during the first ten months of the year were rather limited but in general they were even lower than the low points reached in 1931. Silver had its highest month of the year in February when the average was 30.136 cents per ounce in New York and the lowest month in July at 26.7 cents. Except for the month of January which showed an average of 7.06 cents per pound for electrolytic copper, the price did not average above six cents in any other month and had its low at 5.053 cents for July. The maximum month for lead was January at 3.75 cents per pound in New York and the minimum was July at 2.747 cents. Zinc in St. Louis ranged from 3.322 cents per pound for September to 2.532 cents for May. Aluminum was fixed at 23.3 cents per pound the same as during 1931. Tin was 21.804 cents per pound in January, dropped to a low of 19.244 cents for April and gradually crawled up to 24.779 cents

in September, falling off to 23.936 cents for October. Quicksilver, except for a little spurt in the spring, continued on the down grade which had dropped it in 1931 from \$103 per flask of 76 pounds to \$66.115 and landed it in 1932 at practically \$47.50 during the months of August, September and October. Platinum held at \$40 per ounce for the first four months of the year and was then shaded successively in the six following months to \$39.50, \$37.50, \$35.20, \$35, \$33 and \$33. Basic pig iron which had reached a low of \$15 per long ton 1931, fell gradually to \$14 in July, 1932, and held here through October.

Production and Consumption.—The low metal prices persist as a result of decreased consumption and rising metal stocks in the face of greatly curtailed production. Very few can make any profit at present prices but there is little hope for improvement as long as large stocks of metal overhang the market. Copper production in the United States has been curtailed to about twenty per cent of full capacity but there is sufficient refined copper in this country to last two years at the present rate of consumption. The recent tariff of four cents per pound on all copper imported into the United States is no help as long as domestic production exceeds consumption. The tariff of 2½ cents per pound on lead likewise protects the United States producer only in a small part when

domestic lead stocks have increased at the rate of around 3,000 tons per month in 1932. Zinc is in a little better position as regards stock on hand. Production is being held down to consumption and even a little reduction of stocks has occurred but here again the tariff of 1¾ cents per pound gives the producer little benefit. The tin situation has been fairly satisfactory from the viewpoint of control of production by general agreement among world producers and this metal will probably be among the first to react to improved conditions in the world's industry. Silver as a by-product metal, used in decreased amounts for coinage and faced with decreased ability on the part of the people in India and in China to purchase it, shows little prospect for improvement in price or consumption.

Shipments.—Shipments of iron ore from Lake Superior ports for the season to Nov. 1 amounted to only 3,317,716 long tons as against 23,047,192 tons up to the same date in 1931 and around 60,000,000 tons in 1929. In spite of small shipments, there are large stocks of iron ore on hand at the furnaces. Steel ingot production which had been considered low in 1931 sagged and sagged until it got below 14 per cent of capacity for the month of August. From that point it picked up gradually and was wavering around 20 per cent in November with a downward tendency toward the end of the month. In the diamond industry many mines were closed to prevent accumulation of a great unsold surplus. In Chile the nitrate situation became very bad due to competition of synthetic nitrogen compounds and the burden of high capitalization.

PETROLEUM

Petroleum production has had some measure of control by proration, both enforced and voluntary, with the result that stocks in storage have shown a decrease although proved reserves in the ground are the greatest ever. The new East Texas pool is one of the factors in this increase. Technically the year

saw no important developments in methods of oil production. Abroad the new Irak pipe lines are of importance. The oil industry is seeking a method of control which shall be legal, equitable and workable.

MINING ACTIVITIES

Gold.—Gold mining remains the outstanding activity and a world wide increase in production has occurred. Ontario and South Africa have set new records. New discoveries in Canada have been reported and there is good promise for more. Placer mining has done much to relieve unemployment including a range from the young mining graduate to the old miner. An estimate has been made that in California over 10,000 individuals have turned to placer mining as a means of subsistence. Some companies mining base metals have acquired gold prospects. Companies like Noranda in Quebec have concentrated work on their ore bodies rich in gold and done little on those rich in copper.

Other Minerals.—Except in gold there is little incentive to develop and expand and little is to be recorded along this line. The Mount Isa lead-zinc-silver mine started its new mill and smelter in 1931. This mine has thirty million tons of ore developed. The Boliden gold-copper mine in North Sweden is another large development. The rich radium deposits of pitch blende with high grade silver ore way up in northwest Canada at Great Bear Lake were further developed during the summer. A domestic potash industry is now fully launched in the southwest where the United States has developed large resources sufficient to make it independent of foreign supply.

Depression Factors.—With the continuance of adverse conditions renewed efforts have been made toward more economies, elimination of waste and many little savings. Costs have been lowered further and output per man increased. The burden of taxes remains high and relief is needed. Many mines operating in foreign countries suffered from un-

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favorable exchange. One aid to unpatented mining claims on government lands in the United States was the suspension of required expenditure for assessment work for the year ending June 30, 1932. It is a question how long some mines can survive. Take, for example, the old native copper mines at Lake Superior. Some are closed, others are curtailed and are mining only the richest ore. Wages are down to \$2 per shift for miners and men get only part time employment. Unless a very material advance comes in the price of copper these mines have little future promise.

TECHNICAL PROGRESS

Hard times are not conducive to technical progress and new installations. In fact, to save expense old machines are being patched up and kept running which should be replaced. This only defers the day of reckoning when new equipment must be bought. A few important advances may be noted. The field of airplane transportation has been broadened to include shipment of oil for power, shipment of a small mill complete in Manitoba, and transportation of all the parts of a dredge in New Guinea. An aerial survey has been made of the Rand gold district in South Africa and a wide area has been mapped from the air in Australia. Electrification has increased, especially in coal mining with central electric plants, more electric haulage, electric pumps, and high-speed electric fans. Various alloys are finding increased use. Light alloys of aluminum may reduce weights as much as thirty percent in the case of cars, skips, cages and such like. Duralumin skips are in use in South Africa. To resist wear, hard facings of alloys like stellite are employed, and non-corrosive alloys find application in resisting acid water and other corrosive agents. Refrigeration of air has been extended into some deep gold mines in South Africa where the deepest shaft is now at 7,730 feet. Technical progress has been made in the field of non-metallic minerals, crushed

stone, sand and gravel by the introduction and application of modern mining methods and machinery.

LABOR CONDITIONS

Employment.—The situation continues very trying for labor. Companies are making every effort to relieve unemployment. Wages have had to be cut necessarily but work has been spread out among as many men as possible. Some plants close during the summer or operate intermittently so as to stretch the work along. Others reduce the hours of a shift and employ more men; for example, four shifts of six hours each in 24 hours instead of three eight-hour shifts. Others stagger the work like the Utah Copper Company which gives a man twenty shifts per month. Young unemployed graduates of the Colorado School of Mines have found work under a leasing scheme in an old gold mine at Cripple Creek. Similarly mining graduates and students from Michigan have gone into gold prospecting.

Health and Safety.—Health and safety conditions continue to improve. The year 1931 showed the best record ever obtained for accident reduction in coal mining in the United States. Preventative measures against silicosis in mining and stone working are becoming more and more effective.

ORE DRESSING AND COAL PREPARATION

Intermediate Crushing.—Ore dressing and coal preparation have made some advance. In the field of intermediate crushing of ores the Symons cone crusher is now almost universally used. Feed to ball mills is becoming finer, some plants reducing this feed by rolls to a fineness of 2 mm. The higher speeds in ball mills seem to be working out satisfactorily. A promising new machine, called the Hadsel mill, combines coarse and fine crushing. It is a large cylinder 16 or 24 feet in diameter with buckets inside the circumference which lift the ore and let it fall nearly the full diameter of the cylinder and drop on a bed of

ore itself. Thus the falling lumps break themselves and also the lumps in the bed. Some promising work by the U. S. Bureau of Mines comminutes ore by explosive shattering. Ore saturated with water is heated under pressure and when the pressure is released the sudden formation of steam in the pores and seams disrupts the rock.

Improvements. — Some improvements have been made in vibrating screens. A standard procedure for making sizing tests has been adopted and a committee is working up a standard for sieves used for testing. Dorr classifiers with improved mechanisms are simpler and have higher capacity and a new device gives them greater efficiency. A new type of vacuum filter, the Genter, is doing good work on coal. Activity in placer gold has caused manufacturers to bring out various forms of placer machines for treating gravel.

Flotation.—Gold mills in Canada and California have adopted flotation

with improved results and economies. Flotation of phosphate in Florida and of manganese ore in Cuba are examples of success of this process on non-sulphide ores. Hematite has been floated in the laboratory. A new book by Prof. A. M. Gaudin, entitled *Flotation*, is the best book to date on this subject, especially the theoretical side which is becoming better understood. Higher grade concentrates are being obtained. Zinc concentrates in Southwest Missouri assay 65.5 percent zinc and lead concentrates in Southeast Missouri contain only about one per cent of gangue. A novelty is the underground mill and shops at Gilman, Col. Central milling plants on Southwest Missouri zinc ores are a real success.

Coal preparation continues to advance and the various methods all remain in use at different plants. The Air-Sand process has expanded and a new heavy solution process, the Wuensch, has appeared.

COAL AND COKE

BY R. DAWSON HALL

ENGINEERING EDITOR, *Coal Age*

LOADING MECHANIZATION

Shift to Anthracite Fields.—Loading mechanization has been shifting from the bituminous coal fields to the anthracite, not because mechanization of the former fields is complete,—it is indeed far from finished—but because, (1) the low wages paid in some bituminous regions reduce the savings to be effected by mechanization; (2) the irregular working time increases interest, depreciation and obsolescence charges and lengthens the time during which the operator can hope to pay for his investment, and (3) the operator finds difficulty in obtaining loans. In the anthracite region, conditions are such that loading machinery, if not too heavy and elaborate, will recoup its cost in two or three months, the savings in cost representing, not so

much economies effected in the loading of coal, as in avoidance of the necessity of loading fallen rock in abandoned working places and in transferring the coal from the working face to the mouth of the chamber. As a result of these considerations the anthracite region has been mechanizing its loading operations.

A new mechanical development has been the introduction from Germany of a shaking conveyor chute, with an eccentric drive that is said to give a more sudden reversal of the forward velocity of the chute, thus increasing capacity and making it possible to force the coal up a steeper gradient than can be surmounted by the ordinary shaking conveyor. So far only a few such conveyors have been installed. Another shaking conveyor is supported near the point of dis-

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charge by two double pivoted legs. This part of the conveyor is on a step incline. The forward action of the conveyor is accompanied by a heaving of the conveyor pan, and the coal is thus lifted as well as impelled forward; thus the coal can be raised a foot or more in a length of a few feet. Another German device is a short shaking conveyor with integral drive that can be advanced toward the working face by a ratchet arrangement. The pan is not symmetrical but has a lip which can slide under the coal or on which the coal may fall. Thus the need for shoveling is much reduced. A newly marketed conveyor has a worm-drive with heavy springs that give a heavy kick to the coal without injury to the mechanism. A cable-reel "spotter" has been devised which is operated between the loading machine and the car being loaded. It is designed to replace the gathering locomotive which "spots" the car from the opposite end. The man who arranges the coal in the car, or "trims" it, as the coal is discharged, can handle the spotter, it is said, and synchronize its movements with need. Thus the crew is reduced by one man and his efficiency is greater than that of the two men formerly employed for spotting.

Wage Basis.—Mechanical loading has largely been put on a day-wage basis, removing some of the incentive to produce a fair day's tonnage. In general, this arrangement has been favored because the capacity of the machine to load coal under any given set of conditions is none too well known, in some cases variable and dependent for success on a technique that has to be acquired. In the Union Pacific Coal Company's mines, where long loading experience is available and conditions at any mine are more than usually standard, a bonus system has been devised which awards the crews additional compensation for all tonnages larger than normal.

MINING EQUIPMENT

Cutting records are being steadily improved by the introduction of

track-mounted machines and the tipping of cutters with alloy steel. The tipping material is a tungsten-carbide compound which is applied on a nickel-molybdenum-steel bit. The new bits will cut eleven times as much coal as the old under the same conditions, but it is usual to subject them to more severe service with some reduction in capacity. At one mine, five complete bit changes were saved per shift, reducing time lost 15 minutes for each change.

A Norton Washer has been introduced at the Montevallo mine in Alabama. This British innovation is a modification of the old Baum jig. It has an automatic device which, by opening and closing refuse gates, maintains the refuse bed at minimum depth, and also an automatic stop-and-start control which releases the air pressure and arrests the pulsation of the water when the feed ceases; thus the depth and character of the washing bed is undisturbed and in condition for operation on resumption of feed.

Filtering.—At the Crane Creek mine an American pneumatic plant when installed was fitted with a cloth-tube filter system for the removal of dust from the tables, thus saving the surrounding territory from a pall of fine dust.

Cleaning.—At its No. 10 mine the Pittsburgh & Midway Coal Co. has installed the Wuensch process of cleaning, in which the natural slimes of the coal, fireclay, shale and pyrites are used in the water to give a high-density fluid which is run into a cone. This fine material segregates so as to give a differential density, which keeps refuse out of the overflow and coal out of the slate trap. The coal passes to a dewatering screen, where the thick liquid is removed and thickened and introduced into the bottom of the cone. Coal dust at some mines contains much more impurity than the larger coal and, even if clean, the consumer does not want it unless he is specially equipped for its use, which he rarely is. Accordingly, the New Orient mine in Illinois has introduced a dedusting plan, the 5/16-in. coal pass-

ing over a screen which separates the fines from the plus 1/12-in. material. Both oversize and undersize cascade past air blasts from a pressure blower, driving out the dust to a point where it comes under the influence of an exhaust fan which draws it out of the system. Undersize dust thus traveling passes over two hoppers where the velocity is reduced, permitting the larger particles to be dropped. The exhausted coal is 48-mesh and finer. The hoppers receive dust varying from 10- to 48-mesh. Dedusting of coal is new in the United States but has made much progress in Europe, where the dust, if clean, is used in pulverized-coal furnaces and for briquetting.

Air Fans.—Two new fans have been introduced of the straight-flow type, the air entering the fan and leaving it in the same direction without the creation of turbulence. One at a copper mine in Butte has two pitch blades which give 9.8-in. water gage, 290,000 cu. ft. of air per minute and 83½ per cent efficiency. The fan is set in a Venturi opening. The other ventilator resembles a disk fan, having blades like those of an aeroplane propeller. Thus far it has not been constructed to give in excess of 2-in. water gage.

Drainage.—Several drainage tunnels have recently been constructed or are under construction in the anthracite region. One at Honey Brook colliery near Hazleton, Pa., which was completed in June, 1931, is 16,150 ft. long. It cost about \$750,000 and carries about 15,000 gal. per minute. Owing to the depressed state of the coal market several mines have closed in the anthracite region and have stopped pumping. The water running into neighboring mines has to be handled by these and new pump-rooms have had to be constructed. These usually have duplicate electrical connections and duplicate column pipes for water, and provide that the water may rise several feet above the tops of the pumps without flooding the pumproom. Almost pure hydrogen has been found in pumps and pipes in the mines, the sulphuric

acid in the water acting on the iron and liberating the gas.

Lighting.—Inquiries are being made into lighting at mine faces, into the accidents occurring to men of subnormal vision and into the effect of glare. A lamp which is energized by magnetic induction, and another energized by compressed air—both British innovations—have received much attention. Protective hats, hard-toed shoes and goggles are becoming universal and protective gloves will be the next development, for the canvas glove is helpless as against rock sliding down bars or drills.

Backfilling is receiving more attention in anthracite mines, both wet and dry methods of stowing being tried, the dry, or pneumatic, system hitherto only in a somewhat tentative manner, though in Germany the pneumatic method is rapidly displacing hydraulic methods.

Stripping is receiving new impetus in the anthracite region, which is seeking cheaper coal wherever it can find it. Excavating contractors finding business slack are invading the field, and home contractors are now wealthy enough that they can provide their own machinery; so companies are not faced as formerly with the necessity for equipping them. In consequence, operations are opening everywhere, whereas new bituminous strippings are rare. Horizontal drilling is working economies in the stripping of coal, displacing the churn drill which drills its holes from the top of the overburden. In the West a renewed effort has been made to introduce in underground mines a method of bringing down coal by water pressure, using a cylindrical expanding rubber cartridge.

From railroad-tunnel and large water and sewer construction the coal industry is acquiring steel sheathing, sheets of cambered steel of perhaps 3/16-in. thick, which are bolted together to form a circular, semi-circular or segmental arch. These serve the same purpose as the steel arches used in Europe, but they are both arch and lagging in one end, therefore, fireproof,

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WAGE SCALES

On Jan. 1, Pocahontas operators cut wages 20 per cent; Hocking Valley (Ohio) operators cut their basic wage scale to \$3.25 per day as of Feb. 1, and a strike ensued. On Feb. 16, the New River and Winding Gulf districts cut wages 10 per cent, outside labor receiving \$3.20 per day. On April 1, the mines in Illinois and shaft mines in Indiana suspended work, as they had failed to reach an agreement with their men. From March 14 to April 1, the anthracite mines were on an outlaw strike. At the end of March, a number of companies in central Pennsylvania cut wages 10 per cent, inside day men receiving a maximum of \$4.76. Southern Wyoming operators cut the basic wage as of June 30 to \$5.42, and a strike followed that lasted till the end of May, and northern Colorado operators cut theirs to \$4. On June 16, the Consolidation Coal Co. and the Bethlehem Mines Corporation reduced wages, leaving them still higher than the local union scale, the lowest wage paid being \$2.56 per day.

On July 8, an agreement was made in Illinois with the union officials, but the mine workers refused to accept it. Indiana coal operators offered a \$4 scale, and, on July 12, resolved to empower members to

make individual settlements. On Sept. 10, an agreement was made with the Union for a reduction of 25 per cent in the scale terminating March 31. Ohio's strike against the new wage scale began to collapse in July. Northern Wyoming mines were closed July 1 to induce the men to accept a 20 per cent reduction, which they finally did on Aug. 4-6. From Sept. 6 to Oct. 4 a joint conference met, without result, to discuss a reduction in wage in the anthracite region. On Aug. 6 the miners voted on the agreement and were said to have approved it, though several tally sheets were stolen and there was much opposition to a return to work. In Illinois, on Sept. 3, a meeting called by miners in Gillespie formed the Progressive Miners of America—an organization to oppose the United Mine Workers of America.

Montana miners, on Aug. 11, after a week of negotiation, accepted the southern Wyoming settlement. Sept. 10 saw an agreement between the Indiana Coal Operators' Association and District 11, United Mine Workers, providing for a 25 per cent wage reduction, the contract to end March 31, 1935. This left only the Illinois and Oklahoma mines and a few areas in Ohio in an unsettled condition.

PETROLEUM

BY ERNEST R. LILLEY

PROFESSOR, NEW YORK UNIVERSITY

CONSUMPTION AND EXPORTS

Domestic Gasoline Demand. —

Whereas the close of the year 1931 found the oil industry of the United States still able to report a respectable increase in the domestic demand for its most important product, gasoline, it was not so fortunate in 1932. Consumption did, however, reach the total of 370,000,000 barrels, a quantity in excess of that consumed in any year previous to 1929. As this total indicates a decline of only 8.2% from the peak

consumption of 1931, the domestic demand may be considered as having been well maintained during a most difficult period.

Decline in export gasoline sales, which began in 1930, continued, exports for 1932 approximating only 35,000,000 barrels. The decline may be attributed in part to depressed conditions in many foreign markets and in part to the inability of would-be purchasers to obtain foreign exchange. The actions of certain foreign governments in erecting

barriers against gasoline importation both to protect their exchange positions and to force the use of domestic alcohol and benzol further affected export sales. The most important factor, however, was probably the availability of low-priced gasoline in Roumania, Russia, and Venezuela. Substitution of gasoline from the last named source for the product formerly supplied by refineries located in the United States became especially pronounced after June when crude oil and gasoline tariffs went into effect in the United States.

Kerosene and Other Products.—Consumption of kerosene was well maintained, the decline in exports being more than balanced by an unexpected increase in domestic demand. Both domestic and foreign demands for all other of the major products of the American oil industry showed material declines. These decreases were especially marked for products normally consumed by industry. Thus the demand for industrial lubricants and fuel oils was materially below that of recent years.

PRODUCTION

Decline in Crude Oil.—The domestic production of crude oil declined, the yield in 1932 being approximately 789,000,000 barrels as against 850,000,000 barrels in 1931. The production record for the year is conspicuously lacking in the peaks and troughs that are so characteristic of production records during more normal times. For the greater part of the year the production averaged between 2,100,000 and 2,200,000 barrels daily. The quantity brought to the surface was determined almost entirely by voluntary proration agreements or by compulsory production restriction orders enforced by the governing bodies of the major producing states.

Output Regulation.—While the latter form of production regulation is disliked by oil producers, the great majority agree that it has been a very material factor in maintaining stable conditions in the producing branch of the oil industry through-

out the year and has proved a more satisfactory system of control than the voluntary systems that preceded it. Because of the rigid restrictions placed upon them, the yields of the major flush pools,—East Texas, Oklahoma City, and Kettleman Hills in California—were held at levels far below their rated potential capacities. East Texas lived up to all of the predictions that were made concerning its extent and capabilities in 1931 and may be said to have dominated the oil industry of 1932 even more than it did the activities of 1931. At no time, however, did the state authorities regulating production allow the yield of the area to rise much above the ability of refiners to consume its product. This is a particularly noteworthy achievement considering that the number of wells in the area increased from approximately 3,000 at the opening of the year to 10,000 at its close and that the allowable production per well became steadily less though its capacity to produce changed very little.

Production and drilling activity were drastically curtailed in almost every other section of the country. Two exceptions may be noted. The relatively unimportant Michigan district showed a material increase in number of wells completed and in total production. More importance must be attached to operations in the Gulf Coast area of Texas and Louisiana where a large acreage surrounding salt domes discovered by geophysical methods is held by the larger companies. The actual number of wells completed and oil produced in this territory declined during the first half of the year. However, the success of exploratory work in the latter portion of the year, especially in the Conroe pool, indicates that the area will be an increasingly important source of flush oil in the next few years.

IMPORTS AND FOREIGN COMPETITION

The quantity of crude and refined oils imported into the United States increased materially during the first

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six months of the year. Imports during the weeks immediately previous to the imposition of the tariff were especially heavy. After the tariff came into force imports decreased so that the total imports of crude oil for the year were about the same as in 1931 and those of gasoline were materially lower. As in previous years, Venezuela, Mexico, Colombia, and Peru were the chief sources of supply. Some Roumanian gasoline was imported but while given considerable publicity had little effect upon the gasoline trade as a whole. Decreased imports after the erection of the tariff barrier brought relatively little relief from the competition of foreign oils, the Latin-American oils being sent to foreign markets that had previously obtained a large portion of their needs in the United States. Thus decreases in imports were largely balanced by decreases in exports.

STOCKS AND PRICES

Stocks of refined oils at the close of the year were approximately equal to those on hand on the first of January. Crude oil stocks decreased. The quantity in storage at the end of the year was approximately 18,000,000 barrels lower than the total at the beginning. The decrease in crude oil in storage must be attributed entirely to the success of the various production restriction actions, as the refinery demand for crude oil was materially below that of the previous year. Inasmuch as the proved reserves below the ground were more than adequate to meet any probable immediate demand, the quantity of crude oil in storage tanks was still substantially above the working needs of the industry. However, while from time to time the burden of carrying stocks, particularly stocks of refined oils, served to depress the market, the situation of the industry in this regard was undoubtedly better than it had been for a number of years.

This together with rigid control of production and a decrease in drilling activity resulted in a much firmer price structure than in the previous

year. Prices of crude oil and all major products started the year at levels below those of the same time in 1931. However, while they declined steadily through the spring and early summer of 1931, they rose substantially during the spring of 1932 and were well sustained during the last half of the year. Thus the prices quoted for crude and refined oils throughout the greater part of the year were materially higher than those of 1931. In comparison with boom period figures, prices of 92 cents per barrel for Mid Continent 36 gravity crude and of slightly better than 4 cents per gallon for United States Motor gasoline at Tulsa, the prices quoted throughout the greater part of the year, appear very low. However, they show a remarkable advance over the prices of the early summer of 1931 and while not sufficient to permit large profits did make it possible for a large number of producers and refiners to operate without loss.

GENERAL CONDITIONS

Depression Sentiment.—A feeling of depression was almost universal throughout the oil industry at the beginning of 1932. Though conditions were substantially better than they had been only a few months earlier, few individuals had much faith in the ability of artificial systems of production restriction to prevent the recurrence of a period of uncontrolled over-production and general disorganization similar to that of the summer of 1931. However, the emergency systems of compulsory restriction of production, backed by the full legal powers of the leading oil producing states and by martial law and the use of state militia when necessary, proved equal to the situation. The vital importance of the oil industry in state finances and welfare in producing states was fully realized. Thus, when the courts decided in October that the State of Texas was exceeding its legal rights in enforcing certain features of its production restriction measures in the East Texas pool, the state legislature was

IRON AND STEEL

promptly convened and a law granting the necessary power added to the statutes of the state.

Reserves.—Under more normal conditions such restrictions would have served only to encourage added drilling in other sections. However, limitations to such activity due to the financial difficulties of many producers and the abnormally conservative views of others prevented this. Thus, though the industry steadily withdrew oil from its proved reserves, very little was done except in the Gulf Coast area to replace these reserves. While the effects of such action may not be apparent immediately the history of the oil industry indicates that such periods are always followed by periods of increased prices and renewed drilling activity.

Tariff.—The action of Congress and the President in approving a tariff on crude oil and its products was one of major importance. As the United States still exports more of petroleum and its products than it imports the passage of the tariff bill did not result in an immediate revival of the oil business inside of the United States. However, the tariff barrier including taxes of 21 cents a barrel on crude oil and 2½ cents a gallon on gasoline materially decreased the ability of foreign sources

to undersell American oils inside of the United States and thus aided the regulating bodies in the several oil producing states in their efforts to restrict production.

RESEARCH

When so much attention was directed toward restriction of operations, but little thought and time could be given to research. Data gathered by the organizations enforcing proration added a wealth of material to knowledge concerning the conditions in oil and gas reservoirs and the functions of natural gas and water in the production of oil. The margin between fuel oil and gasoline prices, together with the premium on anti-knock gasoline, favored the use of cracking plants on an increasing scale. One of the major refiners began operation of hydrogenation plants on a commercial basis for the production of lubricating oils. Improvements in methods and equipment tending to reduce costs were utilized wherever possible but relatively few large capital expenditures were made. In brief, the record of the year is one of progress in making an over-expanded industry fit the size of its market,—always a painful operation but one that fortunately seems to have been relatively successful.

IRON AND STEEL

BY EDWIN F. CONE

ASSOCIATE EDITOR, *Iron Age*

PRODUCTION

Pig Iron.—The year 1932 will go down in history as one of the most disastrous on record for the American steel industry. This is true not only as to production of pig iron and steel but as to profits, or rather losses, of most steel companies. Production of pig iron in 1932 is estimated at approximately 8,500,000 gross tons, comparing with other years as follows:

1932	8,500,000
1931	18,430,000
1930	31,750,000
1929	42,610,000
1921	16,690,000

Thus the American pig iron industry, with a capacity of nearly 51,750,000 tons at the end of 1931, made in 1932 less than 16.5 per cent of its rated capacity of pig iron. Last year's output was only about one-fifth

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that of the record production in 1929 and only a little in excess of one-fourth of the 1930 output. The decrease from the 1931 production was 54 per cent. Compared with 1921, the last year of serious business depression, last year's output was only a little more than half that of that year. It was in 1896 that the American pig iron output approached that of 1932. The production that year was 8,620,000 tons.

Steel.—The showing in steel is not much different. Estimated output for last year of ingots and castings will approximate 13,500,000 gross tons which compares as follows with other years:

1932	13,500,000
1931	25,950,000
1930	40,700,000
1929	56,430,000
1921	19,780,000

The capacity of the American steel industry at the end of 1931 was 70,340,000 gross tons in ingots and castings. Thus the 1932 output of only 13,500,000 tons was only a little over 19 per cent of the country's capacity. Compared with the record production of 56,430,000 tons in 1929, last year's output was only 42 per cent of this. The decline from 1931 was about 48 per cent. Compared with 1921 the steel output last year was 31.7 per cent less. It is necessary to go back to 1904 to find a year in which the production approached that of 1932, —in 1904 the total was 13,860,000 tons. All the large steel producing companies and most of the small ones have consistently reported a loss for the periods covered by quarterly reports. None of them will have made money for the year and most of them have reduced or dropped entirely both preferred and common dividends. The United States Steel Corporation had not reduced its preferred dividend through the September quarter though it had by no means earned it.

World Production.—Some data has been compiled as to the world production of pig iron and steel for 1932, compared with other years, which are interesting. Summarized they are as follows in gross tons:

	Pig Iron (29 countries)	Steel Ingots and Castings (23 countries)
1932	38,750,000*	48,850,000*
1931	55,040,000	68,560,000
1930	79,200,000	93,330,000
1921	37,680,000	43,510,000
1913	77,900,000	75,150,000

* Estimated.

These data show that the world production of both pig iron and steel in 1932 did not reach the low levels of 1921, the last period of serious depression, though the volume is far below the record outputs of 1929 and decidedly less than the totals for 1930, the first year of the depression.

IRON AND STEEL PRICES

Fortunately prices of iron and steel products last year did not suffer so severely as production. The following table gives comparisons of composite prices as compiled by *The Iron Age* which show the fluctuations for 1932:

	Finished Steel a pound	Pig Iron a ton	Steel Scrap a ton
Jan. 4, 1932	1.977c.	\$14.79	\$8.47
Dec. 13, 1932	1.948	13.56	6.92
High for 1932	1.977	14.81	8.50
Low for 1932	1.926	13.56	6.42
High in 1929	2.317	18.71	17.58
Low in 1929	2.273	18.21	14.08

Although prices of finished steel in particular did not decline last year as precipitously as did production, the low prices together with the small volume of operations combined to prevent any operating profits. A feature of operations last year was the supreme efforts of many companies to divide the work so that as many employees could be kept busy on part time as possible. Considerable success was achieved.

ECONOMIC AND INDUSTRIAL ASPECTS

Operation.—Aside from the serious economic aspect of the situation last year in the United States, very little transpired to warrant comment. It is fairly well established, as this is written in late December, that additions to blast furnace, open-hearth and rolling mill capacity during 1932 were practically at a standstill. This is not surprising for, with operations at

COPPER

so low an ebb during the entire year and with capacity already far in excess of present needs, there was no justification for expansion.

Technical progress has been recorded though slowly. A feature last year was the continued activity in research. Practically all the large steel and metal research organizations pursued the solution of old and new problems with but little curtailment. Some announcements of new products or processes were made but there are

many interesting results which have either been uncompleted or awaiting more favorable conditions for announcement and exploitation.

Rustless Steel and Alloys.—Expansion in the production and use of the stainless or rustless steels continued last year. This product is gaining in favor constantly and new uses are being developed. Growth of this and the alloy industry in general is assured as a signal development in the American steel industry.

COPPER

BY SCOTT TURNER

DIRECTOR, U. S. BUREAU OF MINES

EFFECTS OF THE DEPRESSION

Decline in Consumption.—The copper industry experienced in 1932 the most severe depression in its history. The decline of consumption became so severe in 1932 that consumption of new copper will probably be about 1,000,000 tons, little more than half that of 1929. Unfortunately, this decline closely followed important new discoveries of copper ores in Canada and in Africa; their rapid exploration and development resulted in a large increase in world-capacity for producing at a singularly inopportune time. Curtailment was promptly undertaken by many of the larger producers, but reduction of output by others was unduly delayed because it proved impossible to foresee any such duration of the depression as has occurred. Delay in effecting the drastic curtailment that is now known to have been required by the circumstances, was also partly attributable to long negotiations undertaken by producers to assure proportionate sacrifices by all who shared in the marketing of copper.

Stocks continued to increase until recently, to a reputed maximum in excess of 800,000 tons. Under such circumstances the price of copper has been largely determined by necessitous selling of urgent character; during the year, it has ranged considerably below the average production-

cost of the copper sold. A maximum price of 7.275 cents in January had broken below 6 cents before March. The minimum price for the year, to the middle of November, was 5.025 cents, the lowest price for copper ever recorded.

Adverse Factors.—These difficult conditions have inspired frantic efforts on the part of various interests to strengthen their individual positions, with the result that many long-established relations throughout the copper industry have been disrupted. Copper tariffs have been enacted or are projected by the United States, Great Britain and France. American-owned production from South America and other foreign regions is theoretically excluded from the markets of the United States as well as from those of the other two countries mentioned. Great Britain will build refineries for treatment of copper produced within the British Empire. Copper Exporters, Inc., which formerly represented about 90 per cent of world production, has become moribund, and domestic producers refuse to make public the statistics of production, consumption and stocks.

PRODUCTION

Estimates of the statistics of copper for 1932 are rendered difficult by the refusal of United States pro-

XII. MINERAL INDUSTRIES

ducers to publish current reports compiled for their own use. World output in June is said to have been 69,000 short tons and that of August 64,000 short tons. Another source of information indicates that the year's production will amount to slightly more than 1,000,000 short tons which, in turn, will be slightly exceeded by world consumption. World stocks of refined copper during the middle of the year were estimated at about 800,000 tons, but some other estimates are higher.¹ Stocks of refined copper in the United States in October are said to have amounted to about 650,000

tons. The writer here quoted² assumes a current annual rate of production of 930,000 tons, including 124,000 tons produced and likewise consumed by Russia and Japan. He estimates that the United States will absorb, at the recent rate of consumption, 300,000 tons per annum; the British Empire 150,000 tons per annum; and the balance of the world, exclusive of Russia and Japan, 380,000 tons per annum. The average annual production of important groups of producers during the 5-year period, 1925-1929, has been compiled for comparison with their corresponding production in 1931, the last year for which published records are available.

¹Scott, E. Balliol (*Mining Journal*, London, June 18, 1932, p. 415), estimates world stocks at 950,000 tons in June.

²Vogelstein, Ludwig (*American Metal Market*, Vol. 39, No. 203, Oct. 21, 1932, p. 1).

AVERAGE ANNUAL PRODUCTION OF COPPER 1925-29 AS COMPARED WITH 1931

	Production		Increase or Decrease Per cent
	Annual Average 1925-1929 Short tons	1931 Short tons	
<i>Anaconda Group</i>	351,921	270,333	-23.2
(Butte, Chile Copper, Andes, Greene-Cananea, Walker and Inspiration)			
<i>Kennecott Group</i>	366,340	251,938	-31.2
(Alaska, Mother Lode, Nevada Cons. Utah, Braden)			
<i>Phelps Dodge Group</i>	170,791	104,064	-39.1
(Copper Queen, Morenci, Calumet & Arizona, Montezuma)			
<i>Miscellaneous Arizona</i>	143,250	68,845	-51.9
<i>Lake Superior Group</i>	87,292	59,188	-32.2
<i>Miscellaneous large operations in the United States</i> ..	23,028	11,851	-48.6
<i>Cerro de Pasco</i>	45,929	42,000	-8.6
Total production controlled in the United States that is accounted for above.....	1,188,551	808,219	-32.0
Canada.....	83,550	146,577	+75.4
Mexico.....	18,026	14,486	-19.6
(Boleo, Mazapil, Mexican Corp.)			
Europe.....	151,076	181,881	+20.4
Africa.....	138,123	190,284	+37.8
Asia.....	92,828	104,400	+12.5
Australia.....	12,339	15,156	+22.8
Total production not controlled in the United States that is accounted for above.....	495,942	652,784	+31.6
Total production accounted for.....	1,684,493	1,461,003	-13.3
Total world production.....	1,805,155	1,536,167	-14.9
Per cent of world production accounted for.....	93.3	95.1	.....

TARIFFS

United States.—Because the United States consumes nearly half of the copper produced by the world, do-

mestic producers tried to reserve this important market for themselves by obtaining a protective tariff of 4 cents a pound on copper imports. Objection was made that, since the United States normally produced considerably more copper than it consumed, a tariff would not prove effective, unless production were curtailed below the amount of domestic consumption; but apparently this could be brought about only through mutual agreements by producers of a kind forbidden by the Sherman anti-trust law. The tariff nevertheless became effective July 1. It has not as yet created the expected differential between American and European prices, as these still differ only by the cost of export. Some account for this by the fact that a large proportion of copper stocks are held in the United States, the ultimate absorption of which they believe will remedy the difficulty. An assured result of the tariff was the disruption of Copper Exporters, Inc., that had included most of the chief producers of the world. Its foreign members promptly withdrew and likewise American-owned companies operating large copper mines in Chile and Peru.

British Empire.—There followed also an agreement, at the Ottawa conference, for trade preference among members of the British Empire, that has led subsequently to arrangements for a tariff of 2 pence (4 cents) on imports of electrolytic copper to Great Britain originating without the British Empire. The tariff is designed to admit without duty the copper of Canada and Northern Rhodesia while excluding that of the United States and of American-owned mines in South America. The building of refineries in Great Britain has also been undertaken. The British Empire will be confronted, however, with the same difficulty encountered by the United States, in that its production-capacity exceeds its consumption.

France.—A third sphere of preference has been set up by France through preferential treatment of

copper imports from Belgium, which are derived in turn from ores of the Union Miniere du Haut Katanga.

TECHNOLOGY

Bureau of Mines.—The extremely low prices for copper during the past few years have necessitated utmost economy in operation. As a consequence, overhead expenditures, including allotments for research, were reduced sharply; but nevertheless there has been notable progress in technology. The Bureau of Mines, by timely publication of a series of outstanding papers on mining and milling methods and costs many of which were written by operating engineers of the most important mines, contributed toward improved technology by providing wider dissemination of the details of efficient operation.

Mechanization.—Many companies have taken advantage of slack operations to improve their mining plants by sinking new shafts and improving ventilating and drainage systems. Further progress in mechanization was made by installing new and more modern machinery and providing wider use of electric power. In the larger concentrating plants, the single motor formerly used to supply power for the entire plant, or for a complete section, has given way to almost complete individual drive. Most plants are divided into duplicate and parallel sections, to facilitate adaptation to varying output conditions and to permit orderly production with minimum interruption for service and repairs.

Smelting.—An important innovation in copper smelting practice was the introduction of natural gas as fuel at the copper smelters at Anaconda, Mont., Douglas, Ariz., Tooele, Utah, and at Cananea, Sonora, Mexico. The minimizing of dusting losses in smelting fine-grained flotation concentrates has been accomplished at some plants by charging the wet concentrates into the reverberatory furnace directly, and at other plants by improving the mechanical equipment in which pre-roasting of the concentrate and the

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charging of the hot calcine are accomplished.

Ore Treatment.—Interest has been aroused by a process by which mixed oxide and sulphide ore is to be treated by a combination of leaching and flotation. The oxide copper in the ore is to be dissolved by sulphuric acid, the dissolved copper is then precipitated on iron and then both sulphide and cement copper are to be recovered by flotation.

Fabrication.—In the field of fabrication, there have been several in-

teresting developments. A new process for the production of thin copper by electrolytic deposition makes available larger sheets than could be obtained previously by rolling. An oxygen-free copper with unique properties is now being produced commercially, and it is reported that a copper alloy with a tensile strength of 100,000 pounds to the square inch has been developed. These and other similar reports indicate that the use of copper may be extended into many new fields.

GOLD AND SILVER

BY CHARLES W. HENDERSON

SUPERVISING ENGINEER, U. S. BUREAU OF MINES

PRODUCTION

Gold production in the United States from 1792 through 1931 has been about \$4,600,000,000. The highest yearly production was \$101,036,000 in 1915. It has remained between \$52,000,000 and \$44,000,000 annually during the period 1920-1932. It was \$51,836,000 in 1932. Silver production in the United States from 1801 through 1927 was 2,996,000,000 ounces. Production for 1928-30 has averaged 56,000,000 ounces; production for 1931 was 30,932,000; for 1932, 24,425,000 ounces.

CONSUMPTION

Manufactures and the Arts.—The Director of the U. S. Mint in his annual report for the year ended June

30, 1932, reports that gold consumption in the industrial arts in the United States during the calendar year 1931 is estimated at \$29,157,865, of which \$5,930,780 was new material. Silver used in the arts is estimated at 33,682,119 fine ounces, of which 24,335,838 fine ounces was new material. As compared with 1930, silver consumption was about 2,700,000 ounces less and gold consumption about \$13,500,000 less. The world's industrial consumption of gold was \$102,252,548 in 1930 and \$61,204,553 in 1931; silver, 91,394,431 ounces in 1930 and 70,138,945 ounces in 1931.

Monetary Stock.—The Director of the Mint also reports the location and ownership of United States money as of June 30, 1932, in the following table.

Kind of Money	Money held in the Treasury	Money outside of the Treasury	Total
Gold coin and bullion.....	\$2,958,560,679 ¹	\$960,035,138	\$3,918,595,817
Standard silver dollars.....	501,022,745 ²	38,985,166	540,007,911
Subsidiary silver.....	8,490,556	296,392,440	304,882,996
Minor coin.....	4,755,771	121,737,555	126,493,326
United States notes.....	2,279,960	344,401,056	346,681,016
Federal reserve notes.....	1,406,880	3,026,990,335	3,028,397,215
Federal reserve bank notes.....	26,298	2,745,742	2,772,040
National bank notes.....	16,578,916	720,095,297	736,674,213
Total.....	\$3,493,121,805	\$5,511,382,729	\$9,004,504,534

¹ Of this, \$1,490,698,969 is amount held in trust against \$1,490,698,969 of gold certificates.

² Against these standard dollars are issued \$487,216,201 of silver certificates and \$1,222,150 of Treasury notes of 1890.

GOLD AND SILVER

UNITED STATES MINING OPERATIONS

Total Output.—Gold production in 1932 was \$51,836,400, silver 24,425,089 ounces, both figures being from the office of the Director of the Mint based on arrivals at United States Mints and assay offices and at private refineries, and including the Philippine Islands (\$4,719,000 gold; 146,147 ounces silver). The total recovered and recoverable for the important gold and silver-producing states, according to the Western field offices of the U. S. Bureau of Mines (U. S. Geological Survey for Alaska) was \$47,026,000 in gold and 22,794,000 ounces of silver.

Alaska.—According to preliminary estimates, placer and lode mines in 1932 produced \$9,539,000 in gold, as compared with \$9,507,000 in 1931. The proportion between placer and lode mines was about 56 to 44. The bulk of the lode gold continued to come from southeastern Alaska, but the percentage of production, as well as the total quantity of gold from that region, was less than it has been in recent years. By far the largest producing lode mine in southeastern Alaska and the Territory is that of the Alaska Juneau Gold Mining Co., at Juneau. The second largest center of lode mining in southeastern Alaska is on Chichagof Island, west of Juneau, where properties of the Hirst-Chichagof and Chichagof Mines (Ltd.) are the largest producers. The Willow Creek lode gold district, which lies north of the head of Cook Inlet, has long been a notable producer and during the last two years has contributed especially large amounts of gold. In 1932 the output of lode gold from this district exceeded that of any preceding year and came principally from the properties of the Willow Creek Mines (Ltd.) on Craigie Creek, with lesser amounts from the Gold Cord, Fern, and smaller mines.

The value of the gold recovered from Alaska placers in 1932 is estimated to have been \$5,312,000, or about \$470,000 more than was recovered from mines of this type in 1931. By far the largest amount of placer

gold came from the Yukon region, with the Seward Peninsula region second. The other placer mining regions together contributed about 20 per cent of the entire placer gold output of the Territory and in the order of the placer production stood as follows: Kuskokwim, Cook Inlet-Susitna, Copper River, northwestern Alaska, and southeastern Alaska.

Arizona.—Arizona in 1932 yielded \$1,320,000 in gold as compared with \$2,608,000 in 1931, and with \$3,514,000 in 1930. The decrease in 1932 from 1931 is due to the heavy curtailment in the output of copper ore and to the large decrease in output of gold ore from the Tom Reed and other mines near Oatman, Mohave County. Copper ores in 1930 produced 78 per cent of the gold of Arizona. As an index of the decrease in gold output, the recoverable copper of Arizona was 401,345,000 pounds in 1931 and 183,887,000 pounds in 1932. The silver output of Arizona (even more basically allied to copper production) decreased from 3,245,000 ounces in 1931 to 2,057,000 ounces in 1932. The Copper Queen branch of the Phelps Dodge Corporation was the largest producer of gold and silver; the United Verde Extension and Magma were also important producers of both metals. Other important producers of gold were the Tom Reed, New Cornelia, and Katherine.

California.—The production of gold in California in 1932 (\$11,649,000) represented 98 per cent of the calculated gross value of recovered metals (gold, silver, copper, and lead). The increase of gold production in 1932 over 1931 was 40,365 ounces, or \$834,418, a gain of about 8 per cent. During the year placer mining was carried on actively throughout the foothill counties of the Sierras and other gold-producing counties north and south. Many unemployed people in 1932 turned to panning for gold. It is estimated that the production from this source was \$450,000 (\$163,000 in 1931) or about 4 per cent of the total gold yield. It is estimated that at least 8,000 people were engaged in placer mining in the State.

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Twenty-two established lode and placer mines, including eight companies operating gold dredging boats, yielded 80 per cent of the gold; small lode mines and placers of other methods than dredging made up the remainder. The gold produced by 21 operating dredges in 1932 totaled \$3,917,000 compared with \$3,619,000 by 22 dredges in 1931. Increased output in the dredging fields of Sacramento and Merced Counties more than offset the declining yield in other gold-dredging fields. The production of lode gold came largely from Nevada, Amador, Shasta, and Sierra Counties in order.

Colorado.—Colorado in 1932 yielded \$6,661,000, in terms of recovered and recoverable gold, as compared with \$4,822,734 in 1931. The sulphotelluride ores of Cripple Creek yielded \$2,260,000, as compared with \$2,385,769 in 1931. The Golden Cycle mill, at Colorado Springs, continued to handle all the ore shipped from the Cripple Creek district. This mill handled also gold ores and concentrates from other Colorado districts, mostly crude gold—[silver-lead-copper] ore from Park County. Shipments of ore to the smelter at Leadville and to the Golden Cycle mill from Park County, almost exclusively from the American, London, and London Extension mines in the Mosquito district, near Alma, resulted in an increase of gold production from \$871,789 in 1931 to \$2,741,023 in 1932, making that county first in gold production in the State. The third gold-producing county was San Juan—\$519,000—from the output of copper-lead-silver-gold concentrates from the Shenandoah-Dives 600-ton mill, treating ore from the Mayflower group. Gilpin County was fourth with \$343,000 from the Chain O'Mines, Perigo, Pittsburg, and Saratoga.

Idaho.—Idaho, never a large producer of gold, increased its output of gold from \$380,000 in 1931 to \$879,000 in 1932. This increase was chiefly due to the reopening of the old gold camp at Atlanta, Elmore County, by the St. Joseph Lead Co., to the increased gold yield from the new dredge of the Idaho Gold Dredg-

ing Co., near Warren, and to the operation of the new mill of the Yellow Pine Co., near Yellow Pine, Valley County. This increase of gold is the more notable in view of the fact that three important gold producers in 1931 produced no gold in 1932: these were the Talache Mines (Inc.), the largest producer of gold in Idaho in 1931; and two formerly large gold producers since 1926, the Idawa Gold Mining Co., and the Idaho Gold Dredging Corporation. In 1932, a new dredge was floated on Warren Creek by the Warren Creek Dredging Co., the old Bailey dredge on Rhodes Creek near Pierce was reconditioned by the New York-Idaho Dredging Corporation, and the dredge in Owyhee County, operated in 1931 by the American Gold Dredging Co., was worked in 1932 by the Superior Leasing Co. The combined output from the 4 gold dredges in Idaho was \$155,000, compared with \$80,000 produced by 4 dredges in 1931. Silver production in Idaho decreased from 7,221,000 ounces in 1931 to 6,700,000 ounces in 1932. The Coeur d'Alene district produced at least 6,500,000 ounces of the silver, chiefly from the Sunshine (Yankee Boy), Bunker Hill & Sullivan, Hecla, Morning, and Crescent mines. Other large producers of silver were the Golconda, Page, St. Joseph, and Whitedelf mines.

Montana.—Montana in 1932 yielded about \$824,000 in gold, compared with \$829,000 in 1931. The largest producers of gold in 1932 were the Liberty Montana, I. B., Ohio-Keating, Anaconda Copper Mining Co. mines at Butte, Jardine, Drumlummon, Butte Highlands, and Gold Coin. Usually Anaconda Copper Mining Co. leads the list of gold producers from its large output of copper-silver-[gold] ores, but the measure for gold and silver output from that company is the fact that its copper output in 1932 was less than half that of 1931. The Spring Hill mine of Montana Mines Corporation, a producer of gold since 1928, and the August mine, a producer in 1931, were both idle in 1932. Silver production was 1,671,000 ounces, as compared with 3,830,000 ounces in 1931, and with 7,053,000

GOLD AND SILVER

000 ounces in 1930. The decrease in silver output in 1932 was due almost entirely to the curtailment in the output of the mines of the Anaconda Copper Mining Co., at Butte. The output of copper in Montana, in terms of recoverable metal, was 184,556,000 pounds in 1931 and about 84,717,000 pounds in 1932.

Nevada.—Nevada mines yielded \$2,729,000 in gold in 1932, as compared with \$2,941,000 in 1931. The principal producers of gold in Nevada in 1932 were the Elkoro Mines at Jarbidge, the Gold Hill Development Co. at Round Mountain, the Bradshaw (Inc.) at Goldfield, the Nevada Consolidated Copper Co. and Consolidated Coppermines Corporation at Ely, the Nevada Porphyry Gold Mines Co. at Round Mountain, and the White Caps Gold Mining Co. at Manhattan. Silver production was 1,553,000 ounces, as compared with 2,562,000 ounces in 1931. The Tonopah district produced about 400,000 ounces, as compared with 834,000 ounces in 1931. Lessees continued to work in the properties of the Tonopah Mining, Tonopah Belmont, and Extension mines, cleaning up all available ore and material in the mines and milling plants of these companies. The Tonopah Mining Co.'s "Desert" custom cyanidation plant, at Millers, closed in May, 1932, after 25 years' operation. The work of dismantling the mill was well under way by October. Other important producers of silver were the Elkoro mine at Jarbidge, the copper mines of the Nevada Consolidated Copper Co. and the Consolidated Coppermines Corporation at Ely, the Gold Hill Development Co. at Round Mountain, and the Tonopah Divide Mining Co. near Tonopah.

New Mexico.—New Mexico in 1932 yielded \$518,000 in gold, as compared with \$644,160 in 1931. Zinc-lead-copper-silver-gold ore from the Pecos mine in San Miguel County and copper concentrates from the Chino Mines at Santa Rita yielded the bulk of the gold from New Mexico in 1931. Shipments of copper-silver-gold silicious ore from Lordsburg, hitherto a contributor of much gold, fell off heavily owing to the closing of

the Eighty-Five mine at Lordsburg shortly after January 1, 1932. Silver production in 1932 was 1,203,000 ounces, as compared with 1,042,000 ounces in 1931. The lead-copper-silver concentrates of the Pecos and Black Hawk flotation mills, treating complex zinc-lead-copper ores, yielded the bulk of the silver, but there was also silver production from Mogollon and Bland.

South Dakota.—South Dakota in 1932 yielded \$9,960,000 in gold as compared with \$8,932,000 in 1931. Placer gold production in South Dakota in 1932 totaled 1,106 fine ounces, chiefly from the Grand Hills Mining Co.'s steam shovel-Ainlay bowl installation on French Creek, near Custer. Nearly all the remainder was from the Homestake mine, at Lead, the largest producing gold mine in the United States. From 1875 to 1932, inclusive, South Dakota has yielded \$308,155,000 in gold and 8,010,000 ounces of silver.

Utah in 1932 yielded \$2,947,000 in gold, compared with \$4,108,000 in 1931. Virtually all the gold was recovered from ores and concentrates smelted at lead bullion and copper matte smelters. The largest producers of gold were the Utah Copper, United States Smelting, Utah-Delaware, Utah-Apex, Utah Metal & Tunnel, and Niagara mines. The silver yield in 1932 was 6,980,000 ounces, as compared with 8,291,000 ounces in 1931, and with 13,129,000 ounces in 1930. An increased output in 1932 of silver by the Silver King Coalition and Park City Consolidated more than offset a decrease by the Park Utah Consolidated to result in an increase of nearly 300,000 ounces in the output from the Park City region. There was a decrease of more than 900,000 ounces in the output of silver from the Tintic district, due chiefly to the large decreases from the Plutus, Chief Consolidated, Eureka Standard, and Tintic Standard. The output from the Bingham district decreased nearly 600,000 ounces. The Silver King Coalition mine was the largest producer of silver in Utah, followed closely by the Tintic Standard.

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ZINC

BY WALTER RENTON INGALLS

CONSULTING ENGINEER, NEW YORK

PRODUCTION

The primary objective of zinc producers in 1932 was to curtail production in harmony with consumption. Outside of the United States this was accomplished by the international cartel. In the United States it was accomplished more by *force majeure*, several important producers becoming unwilling to incur losses any longer. Under the conditions prevailing in 1932 no zinc could be produced in this country at a profit, and outside of the United States only by a few.

CONSUMPTION

From the beginning of 1932 up to August consumption contracted progressively in the United States. Stocks in first hands, however, were not allowed to increase. In Europe there was some improvement in consumption and stocks in first hands were substantially reduced. It is noteworthy that since the peak of 1929 the contraction in consumption has been much more severe in America than in the rest of the world. This is true of all of the metals, iron and steel having suffered the most and tin the least, while copper, lead and zinc have moved closely together. It is also noteworthy that in the branches wherein the metals are associated with quick consumption, e.g., tin for canning, foil and collapsible tubes, and zinc for fruit jar tops and dry cells the contraction in consumption has been less than the average.

OPERATING PROBLEMS

Many zinc mines the world over were constrained to closure. Some mines in foreign countries were kept in operation by governmental subsidies in order to afford employment. In the United States one of the major western mines was kept in operation along with the distiller treating its ore for the reason that shutdown loss would have been more than operating loss. Almost every other mine pro-

ducing ore of the type called "Western" was closed. An increased proportion of our zinc was therefore derived from the Tri-State district, where ore of the lowest grade is mined. This paradoxical event is explained by the mining being done there on a relatively small scale and the operating personnel being willing to accept a bare living wage or whatever a mine would yield them if they themselves operated it. This illuminates the subject of "cost of production".

It is noteworthy that the production of electrolytic zinc in the United States all but ceased, only one of the plants of that class continuing in operation and during the most part of 1932 domestic spelter production was derived mainly from the distillers.

Outside of the United States where on the whole the ores run richer in zinc and lead than with us there were some mines that were able to maintain a high rate of production, especially Sullivan (British Columbia), Buchans (Newfoundland), Bawdwin (Burma), Trepca (Yugoslavia) and the Broken Hill group (New South Wales). In most instances they were assisted by depreciation of their currencies. Notwithstanding the maintenance of such outputs, however, and notwithstanding the curtailed rate of metal production, the ore supply of European smelters largely dried up and they drew further on the accumulated stocks of ore at their works.

PRICES

The price for common spelter at the beginning of 1932 was 3.15c. St. Louis and £14.31 London. It fell to 2.275c. St. Louis (May 17), the historic low, and £10.56 London (Mar. 6). About the middle of the year the price began to rise in both markets and toward the end of October it is about 3c. St. Louis, and £14.75 London.

LEAD

METALLURGICAL PRACTICE

In metallurgical practice there were no new introductions of major character. The most interesting things in recent years have been the development of "flash roasting" at Trail, B. C., and the introduction of continuous distilling at Palmerton, Pa., and Meadowbrook, W. Va. In respect of the latter, which is revolutionary in zinc metallurgical practice, the uncertain factor has been the life of the vertical retorts. At the end of September, 1932, an average durability of two years at least had been demonstrated at Meadowbrook, and that being a highly satisfactory life, the major uncertainty has been settled.

Some of the new plants in Russia have been put in operation but their performances have been unsatisfactory. It is one thing to have a plant of good design and construction and it is another thing to have a personnel that can operate it successfully. Zinc production in Russia has not increased materially.

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There have been but few notable contributions to the literature of zinc. The *World Survey* by the author, published by the Mining and Metallurgical Society of America in 1931, and a similar contribution, also by the author, published under the title of *Zinc* by the Svenska Handelsbanken in 1932 may be mentioned.

LEAD

BY ALLISON BUTTS

ASSOCIATE PROFESSOR, LEHIGH UNIVERSITY

PRODUCTION AND STOCKS

World Output.—The world's production of lead again declined sharply in 1932. Though monthly outputs were declining with regularity, except for a short time after the middle of the year, consumption was also declining and stocks tending to grow. The world's production for the year totaled about 1,250,000 tons of 2,000 lbs., compared with 1,540,000 tons in 1931, a drop of about 20 per cent. The peak production was 1,930,000 tons, in 1929.

Domestic Output.—The United States production has been declining at an even greater rate than that of the rest of the world. The production in this country in 1932 was in the neighborhood of 300,000 tons, probably less than one-quarter of the world output. The United States production in 1932 was lower than in any year since 1908. Moreover, the monthly rate near the end of the year was only about half what it was at the beginning, and was lower than it had been at any time since 1899. The same was true of lead consumption.

Secondary Lead.—The figures given above are for production of lead by the primary producers. There is in addition a large output of re-melted scrap or secondary lead at plants devoted wholly to this class of material. In 1932 the secondary production, though lower in total amount than it had been for many years, reached a new high figure in percentage of the primary production. Indications are that secondary lead output in the United States was about half as large as the primary production. This condition is brought about largely by the greater difficulty of limiting secondary output as compared with primary, and the greater margin of profit in handling the former as compared with the latter when prices are low. Indeed, the secondary producer can often make some money at prices which are below the cost of primary lead. The supply of secondary lead is determined in part by the sales of former years, so that in times of falling consumption, the supply of secondary metal is relatively greater, and in times of depression much secondary material is

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thrown on the market for whatever it will bring. From the standpoint of consumption, the large amount of secondary lead perhaps indicates some substitution of inferior metal for certain purposes, as in low-priced storage batteries. Manufacturers of cable sheathing, on the other hand, have tended toward more and more exacting requirements in an effort to reduce corrosion to a minimum and to avoid as far as possible more or less unexplained failures in cable covering which are occasionally encountered.

Stocks.—Stocks of lead held by producers in the United States underwent further increases last year. For several months the rate of increase was close to 3,000 tons a month.

PRICE

While production and consumption of lead have been falling off, the price has also been declining. This was the case in 1932 just as it was in 1931. The average price of lead at New York in 1932 was 3.2 cents per lb. In 1931 it was 4.2 cents; in 1930, 5.5 cents; and in 1929, 6.8 cents per lb. Thus it has dropped more than half in three years. At the beginning of 1932, the price was 3.75 cents per lb. It declined steadily to a low of 2.75 cents (average) in July, rose to 3.46 cents in September, and then fell again to 3.00 cents.

NEW PLANTS

The Bunker Hill smelter and refinery has been largely rebuilt. A good description was published in the *Mining Congress Journal*, November, 1931. A description has also been given (*Mining & Met.*, Jan., 1932) of the new lead plant of the U. S. Metals Refining Co. at Carteret, N. J., built in 1931. This plant is primarily for the smelting of secondary lead together with silver-bearing residues, sweeps, etc., and the subsequent refining of the lead with recovery of the precious metals. The principal smelting furnace is a reverberatory, as are also the softening furnaces. Copper is removed with sulphur, and Parkes desilverization is employed.

There is also a blast furnace for smelting intermediate products and materials not suitable for the reverberatory.

LEAD SMELTING

Recent studies of conditions in the lead blast furnace have resulted in greater knowledge of that process. The U. S. Bureau of Mines has continued a series of investigations which it started some time ago. In the tuyere zone of the furnace it was found that only 25% to 60% of the area was open enough to allow molten charge to flow freely. This free-smelting area was surrounded by semi-plastic material of about the same composition but not yet fused. The shape and size of the free-smelting area changed rapidly. The temperature of the slag when tapped was 1070-1080° C., that of the lead in the crucible, 870-1010° C. The air in the blast did not react until it reached the free-smelting zone. The zone of highly reducing action was very narrow and changed abruptly. In this zone the temperature was as high as 1400° C. It has long been known that the presence of zinc in the blast-furnace charge is one of the chief causes of accretions in the furnace. It has now been proven that sulphides are also a major cause of accretions, lessening the capacity of the furnace, raising the consumption of coke and scrap iron, and causing greater loss of lead in the slag. This would seem to be a further argument in favor of the recent tendency toward more complete roasting of the ore, with consequent elimination of matte and throwing of copper into the lead bullion.

LEAD ALLOYS

B. Blumenthal (*Metals & Alloys*, Aug., 1932) has written a review of available information on the copper-lead system, including those alloys which form good bearing metals for the most severe service. J. M. Hodge and R. H. Heyer (*Metals & Alloys*, Nov., 1931) give the results of a thorough study of the lead-zinc eutectic, containing 0.50% Zn, 99.5% Pb. K. H. Wegner (*Metals & Alloys*,

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May, 1932), has studied the effect of arsenic in ternary lead-base bearing alloys. He finds a pronounced effect on structure, resulting in needle-shaped crystals having an arsenic-rich core. These interlock, preventing segregation and permitting uniformity of structure under variable conditions. A very complete account of the lead-tin solders and their use was given by G. O. Hiers (*Metals & Alloys*, Nov., 1931).

LEAD CABLE COVERINGS

Studies of lead cable sheathing continue. One failure of the covering after sixteen years' service in Germany was found to be due to corrosion caused by phenol in the paper in-

sulation of the cable. Failure of an aerial cable of the Pacific Gas & Electric Co. was traced to fatigue. It is believed this could be avoided by better design of installation and by using the 1 per cent antimony alloy instead of pure lead. Tests for "creep" in cable sheathing have indicated that antimony and tin do not raise the creep limit in lead, but do reduce the rate of creep. Creep curves for lead at room temperature have the same general form as those for steel at high temperature. *Wire and Wire Products* (Oct., 1931) contains a general description of the different types and properties of lead cable covering.

DIVISION XII

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

AMERICAN ASSN. OF PETROLEUM GEOLOGISTS, Box 1852, Tulsa, Okla.
AMERICAN GAS ASSN., 420 Lexington Ave., New York City.
AMERICAN INSTITUTE OF MINING & METALLURGICAL ENGINEERING, 29 W. 39th Street, New York City.
AMERICAN IRON AND STEEL INSTI-

TUTE, 75 West Street, New York City.
AMERICAN MINING CONGRESS, 841 Munsey Bldg., Washington, D. C.
AMERICAN PETROLEUM INSTITUTE, 250 Park Avenue, New York City.
AMERICAN ZINC INSTITUTE, 27 Cedar Street, New York City.

DIVISION XIII

MANUFACTURES AND TRANSPORTATION

GENERAL CONDITIONS IN MANUFACTURING

By L. SETH SCHNITMAN

CHIEF STATISTICIAN, F. W. DODGE CORPORATION

GENERAL

Industrial America failed to find itself in 1932. Though late summer and early fall produced a measure of improvement from the lethargy that prevailed at midyear it is not too soon to state that this betterment, as on three previous occasions during the current depression, turned out as another abortive start. Erroneously many observers again interpreted a sizable rise in security and commodity prices and a slight advance in the measures of industrial activity as having finally marked the long-awaited turn in the economic tides of the nation. As on earlier visitations this ticker-tape prosperity of the summer of 1932 was the false messiah around which far too many industrial and commercial priests were too quick to rally. But hope still springeth eternal in the human breast and so long as hope overpowers reason just so long must the nation's business expect and receive the uncertain rewards of hope-worship.

MANUFACTURING OUTPUT

Physical Volume.—The physical volume of manufacturing production during the year recorded a loss of approximately 21 per cent from 1931. It will be recalled that 1931 showed a decline of 16 per cent from 1930 and that 1930 was almost 20 per cent lower than the boom year, 1929. Thus manufacturing output in 1932, the third full year of depression, was only 53 per cent of the physical volume reported in 1929 and only 63 per cent of the average annual production dur-

ing the base period, 1923-1925, inclusive. Despite the midsummer and early fall rise of 1932 in the index of manufacturing output the physical volume of factory production showed the largest relative decline for 1932 of any year of the current depression. In fact the 1932 index fell below that for any year since 1919 prior to which no comparable data are available. The gains in the index during the third quarter of 1932 were almost completely due to increased production of consumer's goods, chiefly textiles and shoes. At this point it appears altogether proper to direct attention again to the statement by the author in earlier contributions that prosperity, under our present economy, still depends upon the production of wealth or capital goods and not so much upon the output of goods which are quickly consumable unless such production is maintained for a sufficiently long period to require more capital facilities.

Index Figures.—The rise in the manufacturing index in 1932 was again misinterpreted as having marked the long awaited turn of that elusive corner for which many have searched but which none has found. It is altogether probable that during the Spring of 1933 a similar rise in the index due to an anticipated expansion in consumer's goods production will on this further occasion again mislead the prognosticators of better times. The index of mining production showed a decline in quantitative volume of almost 16 per cent when contrasted with the index for 1931.

GENERAL CONDITIONS IN MANUFACTURING

To put the figures in another way, the 1932 mining volume was only about 61 per cent of the total reported in the peak year, 1929, and 71 per cent of the average for the base period, 1923-25. Combining the indexes of manufacturing and mining production, according to their proper weights, the resultant index of industrial output for 1932 showed a loss of 21 per cent from 1931. The 1932 volume of industrial production was only 54 per cent as large as that shown for 1929 and only 64 per cent of the average annual production during the years, 1923-25. Hence 1932 industrial output was lower, quantitatively, than for any year since 1919, not even excepting the depression year, 1921.

INDUSTRIAL PRODUCTION

Automobiles.—The production of automobiles during 1932 showed a loss of about 43 per cent from 1931. In physical units the domestic output of about 1,365,000 passenger cars and trucks for 1932 compared with 5,400,000 units for the peak year 1929, a loss between the two periods of almost 75 per cent. What is of larger significance, however, is that the 1932 production was lower than that for any year since 1915, with the single exception of 1918, when production of passenger cars was curtailed as an emergency war measure. This striking decline in automobile output is mute evidence, if none other were available, on the depth of the current industrial depression, since even as early as 1915 the American automobile industry had been producing cars and trucks at an annual rate of 1,000,000 units. One significant difference existed between the production of, let us say, 1915 and that of 1932; in the first instance the output was chiefly for first-time purchasers while in the latter case the production was almost entirely for replacements. What is more, the shrinkage in automobile production during the years since 1929 strikingly mirrors the decline in public purchasing power, both domestic and foreign. At the end of 1932 total registrations of passenger cars and trucks in the United States were lower by about 5,000,000 than the peak

figure of 26,520,000 reported at the end of 1930 which probably marked a temporary surfeit, if not indeed a permanent one under our present economy.

Metals.—The 1932 production of steel ingots, totaling 13,100,000 gross tons, was lower than for any year since the beginning of the twentieth century. The decline from 1931 amounted to 48 per cent while the loss from the peak year 1929 amounted to about 77 per cent. For iron and steel the combined index of production showed 1932 to have been only 31 per cent of the average for the base period, 1923-1925. The output of the principal non-ferrous metals in 1932 likewise declined sharply. Zinc, copper, lead, silver, all suffered large losses in production when contrasted with 1931 and earlier years.

Textiles.—Even though the textile industry reported sizeable improvement in the third quarter of 1932 the gains were not of sufficient size to offset losses in the first half and leave the year's total larger than that for 1931. The loss from 1931, however, was confined to relatively narrow limits, being only about 13 per cent. As the year 1932 drew to a close the improvement in textile production was manifestly beginning to abate, having also left its mark in a declining index of general manufacturing production.

Leather and Shoes.—The index of leather and shoe production for 1932 showed a decline of only about 5 per cent from 1931 and was only 17 per cent smaller than the 1929 production index. As in the case of textiles, increased production of leather and shoes during the latter half of 1932 was interpreted as having heralded a genuine turn for the better in general industrial activity; but here, too, it must be remembered that qualitative analysis of betterment is more important than quantitative analysis.

Miscellaneous.—Losses in manufacturing output from 1931 were suffered in tobacco products, petroleum refining, paper and printing, food products, rubber tires and tubes, lumber and cement. Though no accurate data are available it would probably be

XIII. MANUFACTURES AND TRANSPORTATION

safe to say that the dollar value of all manufactures produced in 1932 was lower than that for any year in at least 15 years. Then, too, our foreign trade suffered further important losses in 1932. Our merchandise exports during 1932 were lower than in any other year since 1905 while our imports of merchandise were smaller than in any year since 1908.

INDUSTRIAL EARNINGS

Industrial earnings during 1932 were practically non-existent yet dividend disbursements on industrial stocks were continued on approximately the 1928 level. To be sure the 1932 aggregate dividends on industrial stocks were lower by one-third than those paid in 1931 and were only 60 per cent of the 1930 peak but it is a sad commentary on our civilization that, at the same time, the number of unemployed stood at an all-time peak in American history. Of significance, too, is the fact that in 1932 there was a total of 287 industrial bond issues in default involving \$700,000,000, to say nothing of the remaining 782 bond issues of various other descriptions involving an additional \$1,910,000,000. It is little wonder, in the light of these anomalies, that technocracy should have caught the public mind so quickly.

FACTORY EMPLOYMENT

Factory employment in 1932 was 17 per cent smaller than in 1931 and was about 39 per cent smaller than in the peak year 1929. In fact one must go back for about 25 years to find a fewer number of employed factory workers than were on the payrolls in 1932. What is more important than this, however, is that aggregate factory payroll payments in 1932 were smaller by 30 per cent than these reported in 1931 and were only 42 per cent of the peak shown for 1929. Besides a large loss in the number of employed, a decline of at least 30 per cent in annual incomes of those factory workers, fortunate enough to be employed, occurred between 1929 and 1932, this decline having been effected either by direct wage cuts or part-time employment or both. This

has been the double-edged sword that has most materially cut into the purchasing power of the industrial worker, to say nothing of the similar, and in many ways worse, conditions among agricultural and "white-collar" workers. Here then is the very bottle-neck of the problem; yet far too many contemplate industrial revival without regard for plans that would methodically attempt to restore employment and, hence, purchasing power. Manufacturers of cars, for example, speak glibly of a two or three or four million car production schedule, of a replacement theory long since outmoded, but speak not on the means of providing the one-time mass market with the purchasing power to buy their products.

CONSTRUCTION

New Contracts.—Based upon data of F. W. Dodge Corporation new construction of all descriptions undertaken under contract during the year 1932 approximated \$1,500,000,000. This represented a loss of about 56 per cent from 1931 which itself was more than 30 per cent behind the total for 1930. It is of significance to note that the 1932 construction contract total was lower than for any year since the beginning of the century. It is this condition that has strait-jacketed all heavy industries and to a somewhat lesser extent all business. Upwards of 55 per cent of all contracts for construction awarded during 1932 represented undertakings by Federal, State, County and Municipal governments and the proportion of such public undertakings to all construction awards showed progressive increases throughout the year.

Retarding Factors.—Now that our people are more tax- and economy-conscious than they have been at any time in a generation any further increase in the ratio of governmental construction bears close watching since it is not probable that private moneys will flow into construction projects if further extension of governmental work means a greater tax burden on real estate. Though 1932 saw the creation of the Reconstruction Finance Corporation and the Home Loan Bank

GENERAL CONDITIONS IN MANUFACTURING

system, chiefly as instrumentalities to socialize losses and to provide unemployment relief, these agencies did not produce the volume of new construction which their proponents claimed as probable for them. Though the year 1933 will doubtless see some construction undertaken by loans from the R. F. C., too much hope should not be placed on this instrument of government whose chief function even as in 1932 will be continued socialization of financial losses of the depression, direct relief to the suffering millions and retardation in the deflationary processes. About 20 per cent of the 1932 expenditures on all building, as apart from engineering construction, was for modernization.

Building Material Cuts.—The further retrenchment in the construction industry quite naturally forced parallel declines in the production schedules of building material manufacturers. Thus lumber production was lower in 1932 than in any year in a half-century, not entirely, however, because of the depression in building. The cement industry produced a smaller total volume in 1932 than was shown in any year since 1921. Brick production was probably lower than in at any time in at least 15 years. The structural steel, enameled sanitary ware, heating equipment and other building materials industries suffered losses, also, to a greater or lesser extent. For the year 1933 there is little reason to expect any important turn for the better in the materials industries, since there is small justification for anything but the opinion that the construction industry will do well if in 1933 it can maintain the level of 1932, low though that may have been.

REAL ESTATE

Readjustments that had taken place in the real estate world by the close of 1932, even though important, cannot be said to have been completed. Continued readjustments and further clarification and revision of the real estate tax burden will doubtless occur in 1933; until these factors and the whole question of debt structures are more fully clarified there is little like-

lihood of any important betterment in new construction, at least under private auspices. The present aimless drift toward state capitalism,—or call it what one will,—through such instrumentalities as the R. F. C. can hardly produce a sound basis for more construction, at least until the foul air in the real estate world has become more purified than it is now.

Financial Difficulties.—Easily one-quarter of all urban real estate is in financial difficulty and certainly more than one-third of all farm lands are similarly situated, this because of their respective debt burdens and onerous real estate taxation. It would probably be safe to state that of the more than \$150,000,000,000 of real estate in the United States at least \$50,000,000,000 has gone through foreclosure during the years since 1929 or is seriously threatened with it now. In the light of a shrinkage in national income from a level approximating \$90,000,000,000 for 1929 to a level of not in excess of \$40,000,000,000 for 1932 of which amount something more than \$14,000,000,000 or about 35 per cent represented the cost of government—Federal, State, and Municipal—the difficulties in the real estate world cannot be overemphasized. Naturally, since real estate is still the basis of our national wealth its present deplorable condition has large bearing upon our industrial, financial, and commercial scheme, far more so than tariffs, reparations and war debts which still loom so large in the press.

PROSPECTS FOR INFLATION

It is small wonder then that talk of inflation still pervades and at this writing seems to be gaining many adherents. The pity of it all is that talk of 1932 will, in 1933, probably be converted into action. Price-raising schemes as affecting agricultural commodities appear as probable of enactment, long-term bond issues by the Federal government as a matter of refinancing and for purposes of balancing the budget seem imminent. Such bonds will likely be used to support an even larger issue of national currency. Already barter in its most primitive state is back with us—a re-

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version to an economic order which we had thought was definitely behind us. The use of stamped scrip issued by private exchanges to support local barter is a straw in the wind indicating a probable rise in the circulation of what Gresham called "bad money" in his now famous dictum "bad money will drive out good money."

THE OUTLOOK

Political pronouncements notwithstanding, American industry is not out of the woods. Nor is it likely that it will emerge without our first having further attempted inflation and tasted the sour fruits of failure. Though many former leaders in finance, industry, commerce and politics have been repudiated since the 1929 debacle, existing leadership still appar-

ently lacks the vision, the experience, and the cooperative attitude to cope with the manifold problems that press for solution. If there is real leadership in America it will receive its severest tests in 1933 and the years just beyond. So long as our leaders stand at the cross-roads and argue in the fog there will always be those who will proffer lanterns to light the path to an uncertain new road. If our present leadership does not have the gumption to accept the challenge then the American political, economic, and social schemes may expect to undergo striking changes in the not far distant future, for certainly there is something radically wrong with a system in which easily 10,000,000 people, ready, willing, and able to work, are out of employment.

ADMINISTRATION OF THE TARIFF

By J. D. NEVIUS

BUREAU OF CUSTOMS, TREASURY DEPARTMENT

CUSTOMS COLLECTIONS

Customs receipts have declined for the third consecutive year from the preceding year's total, the receipts for the fiscal year of 1932 being 13.7 less than in 1931. There has also been a decline of 28.9 per cent in the value of imports. The reduced cus-

toms receipts may be attributed, in part, to diminished quantities of imports and, in part, to almost uniformly lower values, and to depreciated currency in foreign countries. The table submitted herewith shows the customs receipts, refunds, and net proceeds for the past two fiscal years.

CUSTOMS RECEIPTS AND REFUNDS

(Fiscal Years 1931 and 1932)

	1931	1932
Receipts:		
Duties, including tonnage tax..	\$ 379,881,770	\$ 328,024,255
Miscellaneous—		
Sale of unclaimed merchandise and abandoned goods.	10,829	32,410
Sale of seizures.....	112,411	69,648
Fines.....	1,800,884	1,285,916
All other customs receipts...	134,558	81,613
Total miscellaneous.....	2,058,682	1,469,587
	<u>\$381,940,452</u>	<u>\$329,493,842</u>
Refunds:		
Excessive duties.....	8,562,334	5,444,373
Drawback payments.....	12,830,375	11,455,874
Total refunds.....	21,392,709	16,900,247
Net customs receipts from all sources.....	<u>\$360,547,743</u>	<u>\$312,593,595</u>

ADMINISTRATION OF THE TARIFF

INTERNATIONAL TRAFFIC

Air.—To date there have been established under the Air Commerce Act of 1926 ten permanent airports of entry and 39 temporary airports of entry, in addition to the regular ports of entry, of which there are approximately 300. All aircraft arriving in the United States from any foreign country are required to make the first landing at an airport of entry, unless permission to land elsewhere is first obtained from the Commissioner of Customs. The person in charge of any aircraft about to depart for the United States from a foreign port or place is required to give notice of the intended flight to the collector of customs for the district in which is situated the intended place of first landing. International travel by airplane was not quite so extensive for the last fiscal year as for the preceding, 793 fewer planes and 1,962 fewer passengers arriving.

Vessel, Train and Vehicular.—The close of the last fiscal year showed a decline in all kinds of international passenger traffic, the number of passengers arriving by vessels, trains, and vehicles being considerably smaller than during the preceding fiscal year. The largest proportionate decline was in the number of automobiles and other vehicles, being 4,497,807 less than for the preceding year.

EMERGENCIES

Section 318 of the Tariff Act of 1930, in cases of emergency, empowers the President to authorize the Secretary of the Treasury to extend during such emergency the time prescribed in the said Tariff Act for the performance of any act. Acting under this authority the President declared an emergency to exist, due to the unprecedented economical situation, and authorized the retention of merchandise in warehouse for a further period than the three years provided by Section 557 of the Tariff Act.

EQUALIZATION OF COSTS OF PRODUCTION

Section 336 of the Tariff Act of 1930, provides that "In order to put into force and effect the policy of

Congress by this Act intended," the Tariff Commission shall (1) upon request of the President, or (2) upon resolution of either or both Houses of Congress, or (3) upon its own motion, or (4) when in the judgment of the Commission there is good and sufficient reason therefor, upon application of any interested party, investigate the differences in the cost of production of any domestic article and of any like or similar foreign article. In the course of the investigation the Commission shall hold hearings and give reasonable public notice thereof, and shall afford reasonable opportunity for parties interested to be present, to produce evidence, and to be heard at such hearings. The Commission shall report to the President the results of such investigations and its findings with respect to such differences in costs of production. If the Commission finds it shown by the investigation and its findings that the duties expressly fixed by statute do not equalize the differences in the cost of production of the domestic article, and the like or similar foreign article when produced in the principal competing country, the Commission shall specify in its report such increases or decreases in rates of duty as it finds shown by the investigation to be necessary to equalize such differences. In no case shall the total increase or decrease of such rates exceed 50 per cent of the rates expressly fixed by statute.

If in the judgment of the President such rates of duty and changes are shown by such investigation of the Commission to be necessary, he shall by proclamation approve such rates of duty and changes in classification. Acting under this section of the Tariff Act the President has, by proclamations issued from time to time, increased the rates of duty on nine different commodities, and decreased the rates of duty on 17 different commodities under the 1930 Act.

SEIZURES

The number of seizures for violations of the Customs laws during the fiscal year 1932 aggregated 68,183, as compared with 40,995 during the pre-

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ceding year, showing an increase of 66.3 per cent. The large increase in the number of seizures was apparently due to the great flood of lottery tickets which swept the country. Actual merchandise seizures were considerably less than during 1931, as was also the value of such. Liquor and narcotic seizures declined, with the exception of the quantity of alcohol seized by Customs officers.

AWARDS OF COMPENSATION TO INFORMERS

Section 619 of the Tariff Act of 1930 provides that any person, not an officer of the United States, who detects and seizes any vessel, vehicle, merchandise, or baggage subject to seizure and forfeiture under the customs laws, and who reports the same to an officer of the customs, or who furnishes original information to the Secretary of the Treasury, to a district attorney, or to any customs officer, concerning any fraud upon the customs revenue, which detection and seizure or information leads to recovery of any duties, fines, penalties, or forfeitures, may be awarded and paid by the Secretary of the Treasury 25% of the net amount recovered, but in no case to exceed \$50,000. During the last fiscal year awards of compensation to informers amounted to \$214,585.50.

INCOMING TRAVEL REGULATIONS

General Information.—Persons arriving in the United States as passengers are divided, for customs purposes, into two classes: (a) Returning residents of the United States, and (b) non-residents. Any person who resides in the United States, including Alaska, Puerto Rico, and Hawaii, is a resident of the United States. All others, including inhabitants of the Philippine Islands, Virgin Islands, and the Canal Zone, are non-residents. The residence of a minor child follows that of the parents. A wife's residence follows that of her husband, unless satisfactory evidence is presented that the wife has acquired a separate legal residence elsewhere.

Declarations.—Every person entering the United States must make a

declaration and entry of personal baggage, except that the senior member of the family, if a passenger, may declare for the entire family, including servants. The duties collected on passengers' baggage for the fiscal year ending June 30, 1932, amounted to \$1,366,659.47. Severe penalties are imposed upon passengers who make false statements, as to value, ownership, or use of articles being declared, or who fail to declare articles acquired abroad in any manner, and such false statements or failure to declare subject the articles to forfeiture.

Exemptions.—An exemption of \$100 is allowed each returning resident, including children, but no resident is allowed the \$100 exemption more than once in 30 days. Exemptions do not accumulate and, although the full exemption was not allowed on a previous arrival, the remainder cannot be claimed on a subsequent trip. All articles, regardless of character (except prohibited articles), up to \$100 in value acquired abroad for household or personal use or as souvenirs or curios, are entitled to come in free of duty under the \$100 exemption if not intended for sale or purchased on commission for other persons. Passengers, however, must not deduct the \$100 exemption in making out declarations as this deduction will be made by customs officers and applied against the articles paying the highest rate of duty.

Guide for Travelling Public.—Last year the Bureau of Customs issued a booklet entitled *United States Customs Information for Passengers from Overseas*, in order to assist both the Customs inspectors and the passengers in the examination of the baggage of the millions of overseas passengers arriving in this country each year. Supplementing this, and as a further aid to the travelling public, the Bureau has recently issued another booklet entitled *United States Customs Information for Passengers Entering the United States from Canada and Mexico*. This booklet has been prepared as a general guide for persons arriving in the United States from either of the

THE UNITED STATES TARIFF COMMISSION

above-named countries and sets forth the procedure to be followed both by the returning residents and non-residents. It contains information relative to the customs laws and regulations, and it is thought that it will not only assist the Customs Service

in its endeavor to collect the revenue and enforce the law with the least possible inconvenience and annoyance to the public but it will enable the public to cooperate with the inspectors, thus facilitating the expeditious examination of its baggage and effects.

THE UNITED STATES TARIFF COMMISSION

BY ROBERT LINCOLN O'BRIEN

CHAIRMAN, UNITED STATES TARIFF COMMISSION

FUNCTIONS

Under Section 332 of the Tariff Act of 1930 the Tariff Commission is directed to investigate and submit reports upon the administrative, fiscal, and industrial effects of the customs laws of the United States and their relation to the Federal revenue. The Commission is also empowered to make general studies or investigations relating to articles in the several schedules of the Tariff Act, to questions of arrangement of schedules and the classification of articles, and to make such special investigations as may be requested by the President, or by either or both houses of Congress. This section also provides that the Commission shall have power to investigate tariff relations between the United States and foreign countries and laws or treaties of foreign countries that may in any way affect American commerce. The section provides likewise that the Commission shall have the power to investigate foreign trade agreements. The provisions of this section are known as the "general powers" of the Commission, and set forth the original and primary functions for which this body was set up in the Revenue Act of 1916.

SUMMARIES OF INVESTIGATIONS

United States—Philippine Tariff and Trade Relations.—A comprehensive report on the tariff and trade relations between the United States and the Philippine Islands treats of topics such as the tariff relations from 1898 to 1930; the development

of United States commercial policy in the islands as manifested through the United States and Philippine tariffs; Philippine-United States commodity trade balances; amounts and proportions of trade reciprocally exempted because of the duty-free trade relationship, as distinguished from trade exchanged under the general free lists; comparative amounts of duties nominally waived under mutual free-trade relations; trade through American regional ports and by American vessels; and the effect of certain degrees of Philippine tariff preference on selected trade from the United States.

Fish and Other Marine Products.—On April 30, 1931, the Commission submitted to the Senate a report on alien ownership and operation of fishing vessels. This report is the first complete survey ever made of the commercial fisheries of the United States. The information and statistics collected are valuable to the fishing industry as well as to Government.

Computed Duties and Equivalent Ad Valorem Rates on Imports into the United States.—The Commission has frequently been asked to supply information concerning the rates of duty paid on goods imported into the United States from certain specified countries. By reason of the current international changes in customs tariffs and the passage of the Tariff Act of 1930 the demand for such data has greatly increased. To meet this demand the Commission compiled and published a statistical tabulation entitled "Computed Duties and Equiva-

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lent *Ad Valorem* Rates on Imports into the United States from Principal Countries.”

Crude Petroleum.—Section 332 (f) of the tariff act of 1930 provides that the commission ascertain the approximate average cost of a barrel of crude petroleum delivered to the oil refineries located on the Atlantic seaboard from the oil fields of the United States during the three years preceding 1930 and the present approximate average cost of a barrel of crude petroleum from Lake Maracaibo, Venezuela, delivered to the same points. The Commission obtained the cost of production and the sales value of crude petroleum in all the other principal producing regions in the United States, as well as in the Mid-Continent-Gulf area. To afford as much information as possible on different phases of the industry, the costs of production of the domestic crude were tabulated in several different ways—by large and small companies, by States and groups of States, by fields, by cost groups, and by gravities of the oil produced. In addition to the costs of production on different bases, the report gives general information on several phases of oil production in both the United States and Venezuela.

Copper.—An investigation was instituted February 7, 1931, in response to Senate Resolution No. 434 of February 5, 1931, directing the Commission to investigate the differences in costs of production during the calendar years 1928, 1929, and 1930, of the foreign and domestic articles included in paragraph 1658 of the Tariff Act of 1930. Data from which to determine domestic costs of production were obtained in the United States directly from the books of all the major and most of the minor producers. Besides making a field investigation, the commission sent questionnaires to many smaller producers from whom a substantial number of satisfactory replies were received. The costs obtained cover well over 90 per cent of the total production of copper through all stages from ore to refined metal. Data concerning foreign costs were obtained from the producers' books

for practically all of the production in Chile, Peru, Mexico, Canada, and Cuba, covering the production of the major portion of foreign output. Further data were obtained from the annual reports and other published statements concerning the cost of production in Africa and Europe.

Relation of Duties to Value of Imports.—This report shows a comparison of the average *ad valorem* equivalent of duties in 1929 under the act of 1922 and in the year ended September 30, 1931, under the act of 1930. A distinction is made between articles subject to the different forms of duty—specific, *ad valorem*, compound, and miscellaneous. A distinction is also made between articles subject to each form of duty and those on which the 1930 rates were the same as, higher than, or lower than the 1922 rates.

Depreciated Exchange.—The report on depreciated exchange is a series of studies made in response to Senate Resolution No. 156, adopted April 12, 1932. In the study of the effect of depreciation on imports, tables are given, together with brief explanatory text, showing imports during the months since currency depreciation in foreign countries set in, in comparison with previous months. Where available, quantities and average unit values are shown. In most cases the data are carried through March, 1932. Certain averages are presented for the 5-month period October, 1931, to February, 1932, in comparison with previous periods. In the *export* study the same general method of tabulation is followed as for the import data. In both these studies the complete trade of the United States is shown, with separate tabulations for the principal articles imported or exported.

The section dealing with *ad valorem* equivalents of specific rates of duty under the Tariff Act of 1930 is a detailed analysis of the effect of the recent general decline in prices upon the *ad valorem* equivalents of specific duties. The Senate resolution called for the *ad valorem* equivalent of the specific rates as of the date of the passage of the Tariff Act of 1930 and

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as of April 1, 1932. The data which most nearly correspond with the specified dates are those for the month of July, 1930, and the month of March, 1932, and the *ad valorem* equivalents are therefore shown for these two months. Because the average unit value, on which the average *ad valorem* equivalent of the duty depends, for a single month may not be representative, comparisons are also presented between the period July 1 to September 30, 1930, and the period January 1 to March 31, 1932, being respectively the first quarter under the new Tariff Act and the latest quarter for which data are available.

Regulation of Tariffs in Foreign Countries by Administrative Action.

—This report is a comparison of the legal provisions in fifty foreign countries by which their national legislatures have empowered the executive branch of the government to change tariff rates and to restrict or prohibit importation under certain conditions described more or less definitely in the different laws. The 50 countries included in this comparison are arranged in alphabetical order, and the legislative delegations of power with respect to each are presented under three general heads: General discretionary powers, countervailing duties, and antidumping provisions.

Bases of Value for Assessment of *Ad Valorem* Duties in Foreign Countries.

—Legal provisions in 48 foreign countries for the methods or basis of valuation used in applying *ad valorem* rates of duty to imported merchandise are compared in this compilation. Naturally, the valuation provisions of foreign tariff laws show wide variations in form and in regard to administrative detail. In substance, when compared in respect of their fundamental resemblances as to the basis of valuation for import duty, all the statutory provisions included in this compilation show only two broadly similar types of valuation. One of these applies the *ad valorem* rates of duty to the value of merchandise in the exporting country, known as the f. o. b. value. The other applies the *ad valorem* rates of duty to the value of the goods of the place

of importation, generally referred to as the c. i. f. value. The 48 countries covered include all the leading commercial nations of the world levying customs duties according to value. Spain and Switzerland are omitted because they have no *ad valorem* rates in their customs tariffs.

RATE ADJUSTMENT

Section 336 of the Tariff Act of 1930 prescribed the method by which statutory rates of duty may be adjusted. After an investigation by the Tariff Commission and report to the President, the President may proclaim an increase or decrease in an existing rate of duty, within certain limitations, in order to equalize differences in costs of production of a domestic article and of a like or similar foreign article produced in the chief competing country. Investigations for the purposes of this section may be instituted by the Commission (1) upon request of the President, (2) upon resolution of either or both houses of Congress, (3) upon its own motion, or (4) upon request of any interested party when in the judgment of the Commission there is good and sufficient reason therefor. Under the provisions of this section foreign interests have the same opportunity as domestic to make application for investigation looking toward a change in duty, and also the same opportunity to participate in the investigations conducted under the section. The Commission has received applications for investigations from a number of foreign concerns, and several investigations have been instituted on that basis.

The information required in investigations under this section is primarily the itemized costs of production of a domestic article and a similar foreign article. Because of the private and confidential character of cost data in all industries, it is necessary for the Tariff Commission to conduct extensive field work both in the United States and in foreign countries. To carry on the domestic field work and the other types of work incidental to these investigations the Commission has an organization of

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trained workers centralized in Washington. A small force is maintained at the Port of New York, and the commission has a small staff of trained investigators and clerical help whose headquarters are in Brussels. These field forces are augmented by personnel from the Washington office as the need therefor arises. The Commission's representative in Europe makes contacts with foreign industries, and by explaining to them not only the provisions of the tariff law, but also the advantages to producers exporting to the United States, seeks their cooperation in assisting representatives of the Commission to obtain the desired costs of production from the books of the producers of the particular article under investigation. Foreign producers have lent generous cooperation to the Commission's representatives. In cases where foreign costs are not readily ascertainable, the law provides that the weighted average of invoice prices of imported articles or the average wholesale selling price may be used as evidence of foreign cost.

Up to October 1, 1932, the Tariff Commission had instituted 85 investigations looking toward adjustments of existing rates of duty. Fifty-six of this number were ordered at the request of the Senate. Of the 85 investigations, 45 have been completed and reported to the President. As a result, 19 rates were decreased and 14 increased. In the case of 50 commodities included in the 45 reports the Commission did not specify a change in the duty. During this same period the commission received 195 requests for investigations under this section, 27 of which were Senate Resolutions. Forty-eight of the applications made for investigation were dismissed because, in the judgment of the Commission, after a study of the existing situation, there was not good and sufficient reason for making the investigation. Nine other applications were withdrawn by the applicants.

The specific articles on which changes in rates have been proclaimed under section 336, (up to October 1, 1932) as well as those reported upon but on which no change in duty was specified, are as follows:

COMPLETED INVESTIGATIONS AND REPORTS TO THE PRESIDENT (TO OCT. 1, 1932)

DECREASES

Article	Paragraph No.	Change in duty	Date of proclamation or approval of report	Effective date of change
1. Wood flour.....	412	Decreased from 33 $\frac{1}{4}$ per cent to 25 per cent ad valorem.	1931 Feb. 5	1931 Mar. 7
2. Maple sugar	503	Decreased from 8 cents to 6 cents per pound.	...do....	Do.
3. Maple sirup	503	Decreased from 5 $\frac{1}{2}$ cents to 4 cents per pound.	...do....	Do.
4. Hats, bonnets, and hoods of straw, chip, paper, grass, palm leaf, willow, osier, rattan, real horsehair, cuba bark, ramie or manila hemp, wholly or partly manufactured, if sewed. (See also Nos. 1 to 4 under changes not specified.)	1504 (b)	Decreased from \$4 per dozen and 60 per cent ad valorem to \$3 per dozen and 50 per cent ad valorem.	...do....	Do.
5. Pigskin leather not imported for footwear.	1530(c)	Decreased from 25 per cent ad valorem to 15 per cent ad valorem.	...do....	Do.

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COMPLETED INVESTIGATIONS AND REPORTS TO THE PRESIDENT (TO OCT. 1, 1932)—Continued

DECREASES

Article	Para- graph No.	Change in duty	Date of proclama- tion or approval of report	Effective date of change
6. Edible gelatin, valued at less than 40 cents per pound. (See also No. 8 under changes not specified.)	41	Decreased from 20 per cent and 5 cents per pound to 12 per cent ad valorem and 5 cents per pound.	Mar. 16	Apr. 15
7. Wool-felt hat bodies and similar articles.	1115(b)	Decreased from 40 cents per pound and 75 per cent ad valorem to 40 cents per pound and 55 per cent ad valorem.	...do....	Do.
8. Wool-felt hat bodies pulled, etc., and finished hats and similar articles.	1115(b)	Decreased from 40 cents per pound and 75 per cent ad valorem and 25 cents per article to 40 cents per pound and 55 per cent ad valorem and 12½ cents per article.	Mar. 16	Apr. 15
9. Olive oil weighing with the immediate container less than 40 pounds. (See also No. 21 under changes not specified.)	53	Decreased from 9½ cents per pound on contents and container to 8 cents per pound on contents and container.	June 24	July 24
10. Bent-wood furniture wholly or partly finished, and parts thereof.	412	Decreased from 47½ per cent ad valorem to 42½ per cent ad valorem.	...do....	Do.
11. Pipe organs and parts thereof.	1514(a)	Decreased from 60 per cent ad valorem to 35 per cent ad valorem.	...do....	Do.
12. Pipe organs and parts thereof for church or other public auditorium not charging admission fee.	1514(a)	Decreased from 40 per cent ad valorem to 35 per cent ad valorem.	...do....	Do.
13. Feldspar, crude. (See also No. 25 under changes not specified.)	207	Decreased from \$1 per ton to 50 cents per ton.	Dec. 2	Jan. 1
14. Cylinder, crown, and sheet (window) glass.	219	Decreased from 1⅞ cents to 1 ²⁶ / ₆₄ cents per pound on sizes not over 150 square inches; 2 ¹ / ₁₆ cents to 1 ³⁵ / ₆₄ cents per pound on sizes over 150 and not over 384 square inches; 2 ⁷ / ₁₆ cents to 1 ⁵³ / ₆₄ cents per pound on sizes over 384 and not over 720 square inches; 2 ⁵ / ₈ cents to 1 ⁶³ / ₆₄ cents per pound on sizes over 720 and not over 864 square inches; 3 cents to 2 ¹ / ₄ cents per pound on sizes over 864 and not over 1,200 square inches; 3 ³ / ₈ cents to 2 ³⁴ / ₆₄ cents per pound on sizes over 1,200 and not over 2,400 square inches; 3 ¹ / ₄ cents to 2 ⁵² / ₆₄ cents per pound on sizes over 2,400 square inches. Minimum rate on foregoing weighing less than 16 ounces but not less than 12 ounces per square foot decreased from 50 per cent ad valorem to 37½ per cent ad valorem.	...do....	Do.

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COMPLETED INVESTIGATIONS AND REPORTS TO THE PRESIDENT

(TO OCT. 1, 1932)—Continued

DECREASES

Article	Para-graph No.	Change in duty	Date of proclama-tion or approval of report	Effective date of change
15. Boots and shoes of leather, turned. (See also No. 11 under "Increases" and 26 under changes not specified.)	1530(e)	Decreased from 20 per cent ad valorem to 10 per cent ad valorem.	...do....	Do.
16. Peppers in their natural state...	774	Decreased from 3 cents per pound to 2½ cents per pound.	...do....	Do.
17. Eggplant in its natural state....	774	Decreased from 3 cents per pound to 1½ cents per pound.	...do....	Do.
18. Infants' unembroidered wool jersey outerwear, n. s. p. f., valued at more than \$2 per pound.	1114(d)	Decreased from 50 cents per pound and 50 per cent ad valorem to 50 cents per pound and 25 per cent ad valorem.	1932 June 11	July 11
19. Alsimin, ferrosilicon aluminum, and ferro-aluminum silicon containing 20 but not more than 52 per cent of aluminum and containing silicon and iron.	302(j)	Decreased from 5 cents to 2½ cents per pound.	June 18	July 18
20. Sheepswool sponges.....	1545	Decreased from 30 per cent to 22½ per cent.	Aug. 19	After Sept. 17

INCREASES

1. Woven wire fencing and woven-wire netting composed of wire smaller than 8/100 and not smaller than 3/100 of an inch in diameter, coated with zinc or other metal before weaving.	397	Increased from 45 per cent ad valorem to 50 per cent ad valorem.	1931 Feb. 5	1931 Mar. 7
2. Woven-wire fencing and woven-wire netting composed of wire smaller than 8/100 and not smaller than 3/100 of an inch in diameter, coated with zinc or other metal after weaving.	397	Increased from 45 per cent ad valorem to 60 per cent ad valorem.	...do....	Do.
3. Fourdrinier wires, suitable for use in paper-making machines.	318	Increased from 50 per cent ad valorem to 75 per cent ad valorem.	Mar. 16	Apr. 15
4. Cylinder wires over 55 meshes per lineal inch in warp or filling.				
5. Woven-wire cloth over 55 meshes per lineal inch in wrap or filling, suitable for such wires.	1005(a) (3)	Increased from 3¼ cents per pound to 4⅞ cents per pound.	June 24	July 24
6. Cordage, including cables, tarred or untarred, composed of three or more strands, each strand composed of two or more yarns, wholly or in chief value of hemp.				

THE UNITED STATES TARIFF COMMISSION
COMPLETED INVESTIGATIONS AND REPORTS TO THE PRESIDENT
(TO OCT. 1, 1932)—Continued
INCREASES—Continued

Article	Para- graph No.	Change in duty	Date of proclama- tion or approval of report	Effective date of change
Dried egg products:				
7. Whole eggs.....	713	Increased from 18 cents per pound to 27 cents per pound.	...do....	Do.
8. Egg yolk.....			...do....	Do.
9. Egg albumen.....	364	Increased from 50 per cent ad valorem to 70 per cent ad valorem.	...do....	Do.
10. Bicycle, velocipede, and similar bells, finished or unfinished, and parts thereof. (See also Nos. 19 and 20 under changes not specified.)			...do....	Do.
11. McKay sewed boots and shoes.. (See also No. 15 under "Decreases" and No. 26 under changes not specified.)	1530(e)	Increased from 20 per cent ad valorem to 30 per cent ad valorem.	Dec. 2	1932 Jan. 1
12. Peas, green or unripe.....	769	Increased from 3 cents per pound to 3 ⁹ / ₁₀ cents per pound.	...do....	Do.
13. Infants' unembroidered wool outerwear, knit or crocheted, except jersey, n. s. p. f., valued at more than \$2 per pound.	1114(d)	Increased from 50 cents per pound and 50 per cent ad valorem to 50 cents per pound and 75 per cent ad valorem.	1932 June 11	July 11
14. Gelatin, and glue of animal origin, not specially provided for, valued at less than 40 cents per pound.	41	From 25 per cent and 2 cents per pound to 20 per cent and 2½ cents per pound. ¹	Aug. 19	After Sept. 17

¹ Whether the new rate results in an increase or a decrease in the amount of duty collected depends upon the dutiable value. The rate as changed results in an increase in duty if the dutiable value is less than 10 cents per pound, and in a decrease in duty when the dutiable value exceeds 10 cents per pound.

CONCERNING UNFAIR PRACTICES

Section 337 of the Tariff Act of 1930 authorizes the Tariff Commission to conduct investigations of alleged unfair methods of competition and unfair acts in the importation and sale of merchandise. Whenever unfair methods of competition are clearly demonstrated through investigation by the Tariff Commission, in accordance with the provisions of this section, the President may direct, through the Secretary of the Treasury, that the articles concerned be excluded from entry into the United States. The Commission has received several complaints under this section, most of which have been dismissed without prejudice because of lack of evidence that injury was being done to an American industry. Two investigations are under way (October, 1932) relating to the methods of im-

portation and sale of Russian asbestos, and to slide fasteners and articles containing such fasteners.

DISCRIMINATION BY FOREIGN COUNTRIES

The tariff policy underlying this section of the act is what is known as unconditional most-favored-nation treatment. In return for the equal tariff treatment accorded by the United States to all foreign countries alike, levying the same rate of duty on the like or similar products of every foreign country (except only our special relations with Cuba), the United States expects and insists that its own products shall receive in foreign countries tariff treatment as favorable in all respects as the treatment accorded to the like or similar products of any foreign country. In line with this policy, Section 338 pro-

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vides for the imposition, by proclamation of the President whenever he finds that the public interest will be served thereby, of new or additional rates of duty, not to exceed 50 per cent *ad valorem* or its equivalent, on products of any foreign country (or on articles imported in its vessels) which discriminates against the commerce of the United States "in such manner as to place the commerce of the United States at a disadvantage compared with the commerce of any foreign country."

If by reason of such discrimination by a foreign country benefits accrue to any industry in some other foreign country, the President may, when he finds that the public interest will be served thereby, proclaim such new or additional rates of duty upon products of the industry benefiting by the discrimination as he shall determine will offset such benefits, not to exceed 50 per cent *ad valorem* or its equivalent.

In case any country, after the issuance of a proclamation by the President, maintains or increases its discrimination against the commerce of the United States, the President is further empowered, if he deems it consistent with the interests of the United States, to exclude the products of such country (or such articles imported in its vessels as he shall deem consistent with the public interests) from importation into the United States.

DOMESTIC VALUE—CONVERSION OF RATES

Section 340 of the present Tariff Act requires the Commission to ascertain the *ad valorem* duties or duties regulated by value which, if based upon the domestic value of imported merchandise, would return the same amount of revenue as the 1930 rates would have given if levied upon the present (largely foreign) basis of valuation of the imports during the fiscal years 1928-1929. The information contained in the report, which was issued on July 1, 1932, is for the use of the Congress in connection with

possible future legislation, but in no way effects the present customs procedure.

In the preparation of this report the Commission obtained for each article or group of articles concerned, so far as information was available, the foreign or dutiable value of the merchandise imported during the period July 1, 1927, to June 30, 1929, and the price at which it sold in the United States, and calculated from these data the rates of duty which, if applied on the basis of domestic value, would have yielded the same amount of revenue as the rates in the Tariff Act of 1930 which are applied to foreign value.

The work of obtaining, selecting, testing, organizing, and summarizing the material obtained from the records of numerous importers occupied a large staff for many months. Nearly a thousand rates of duty, based wholly or partly on the value of the article, were studied in detail and converted in detail from the existing foreign basis to rates based upon the domestic value.

METHODS OF VALUATION

Section 642 of the Tariff Act of 1930 requests the President to have made by such agency or agencies as he may designate a survey of the bases of valuation of imported merchandise for the assessment of customs duties, particularly with a view to determining the extent to which values in the United States may properly be used as a basis for the assessment of customs duties and to submit to Congress a report thereon at the earliest practicable date.

In July, 1932 the President directed a letter to the Commission indicating that survey be undertaken "by the Tariff Commission with the appointment of an advisory body comprising representatives from the Bureau of Customs, the Department of Commerce, and such other agencies as the Commission may deem desirable to coordinate." This study is now under way.

THE EXPORT AND IMPORT BALANCE

THE EXPORT AND IMPORT BALANCE

BY RALPH A. YOUNG

ASSISTANT PROFESSOR, UNIVERSITY OF PENNSYLVANIA

EXCESS OF EXPORTS: 1932

Export Decline.—Continuing world-wide recession in production, trade and commodity prices has been reflected again in 1932 in a drastic contraction of both merchandise exports and imports of the United States. Whereas exports declined by as much as \$891,000,000, or 23%, during the first nine months of 1930, and \$1,110,000,000, or 37%, in the first nine months of 1931, for the corresponding period of 1932, they declined \$604,000,000, or 36%. For the first nine months of the last three years, therefore, there was an aggregate decline of \$2,655,000,000 from the peak export volume of 929 (\$3,843,000,000) or approximately 69%.

Import Decline.—Imports during the first nine months of 1932 declined almost as seriously as exports, in comparison with the same period of 1929, or \$2,345,000,000 (from \$3,360,000,000). In percentage terms, the decline was approximately the same, 69%. Contrasting imports for the like periods from 1930 to 1932, we find a decline of \$604,000,000 from 1931 to 1932, as against a decline of \$959,000,000 from 1929 to 1930, and a decline of \$782,000,000 from 1930 to 1931. Though the more recent decline was smaller in absolute dollar figures than in the immediately preceding years, it was a much larger percentage decline,—37% as against 33% and 28%. It is an ominous fact that no such three-year reductions in our exports or imports have occurred in the history of our foreign trade.

"Favorable" Balance.—Offsetting exports and imports, the balance of trade for the first nine months of 1932 was again "favorable." This "favorable" export balance, amounting to \$174,000,000, however, was \$50,000,000 less "favorable" than for the similar period of 1931, and \$377,000,000 less "favorable" than for the first three quarters of 1930.

While the seasonal swings of the year's last quarter may increase it to some extent, yet it is scarcely possible that for the full year, the balance will approach that of last year, or \$224,000,000.

DEPRESSION BALANCES

No period provokes greater speculation on the export or import balance of trade than a period of world-wide industrial depression. The last slump of international scope, occurring in 1920 and 1921, was accompanied by a sharp decline in our export balance, and successive drops marked the years immediately following. In the severe depression preceding that, 1908, our export balance was greater during the year of sharp decline in business than in the year preceding, and then fell off considerably in the ensuing years. In view of the extended severity of the present depression, it is not unlikely that immediately succeeding years will again witness a declining export balance. While the rapidity with which conditions change renders prognostication risky, still there are a number of considerations pointing in the direction of a lower export balance. First might be mentioned the improbable early recovery of our foreign lending, unquestionably a factor in our maintenance of an export balance from 1922 to date. Second, increasing competition in foreign markets for our goods, arising from a variety of causes; for our agricultural and raw material products from the opening up of new foreign production areas and more intensive cultivation in other areas; for our manufactured products, from general economic pressure upon European industrial civilization eventuating in a more intense international competition; and for both, from currency depreciation giving certain producing areas a semi-permanent advantage in the international ex-

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change of their products. Finally, increased foreign tariffs and other trade restrictions currently being made more extensive and complex for purpose of protecting home industry against intensified international competition; for obstructing exchange dumping; for preserving a semblance of gold standard conditions or protecting currencies against foreign exchange depreciation, and for the purpose of enlarging the economic bargaining power of nations in international conferences.

SETTLING FAVORABLE MERCHANDISE BALANCES

The adjustment of our favorable balances of trade under the complex conditions of modern international trade can never be traced completely, since merchandise transactions today represent no more than 50% of the nation's total international money transactions. It is possible, however, to classify the remaining 50% under service, capital income, and cash transactions, and gather a fairly accurate description of the process of adjustment. Of course, no one today refers to these latter types of transactions as either the ultimate cause of, or result of, the merchandise balance of trade. Even though all classes of international trade, visible and invisible, are closely related, each possesses a certain degree of independence from the rest, and the chance interplay of separate movements always goes a long way in their equating.

THE SERVICE BALANCE OF TRADE

What is generally regarded as the service balance of trade is the balance remaining from offsetting international payments for freights, government services abroad, tourist travel, immigrant remittances, royalties and similar so-called "invisibles." From 1922 to 1927, this balance was a comparatively stable adverse balance of around \$700,000,000, but from 1927 to 1929 there was a fairly sharp increase and the total deficit on service account in 1929 amounted to \$1,043,000,000. From 1930, the balance was again high,

aggregating \$945,000,000, but for 1931, it declined to \$773,000,000. The year 1932, like 1931, will witness a further reduction for the same reasons which operated last year. First, judging from press reports, American tourist travel abroad, both to bordering countries and to overseas countries, has exhibited another marked decrease. Second, unquestionably immigrant remittances from America to foreign countries have again been affected unfavorably by continuing depression and unemployment. The adverse balances of tourist trade and immigrant remittances have regularly been the dominating balances in our total service trade.

THE CAPITAL BALANCE

Long-term Capital Investment. —

The capital balance, the annual balance of all long- and short-term loan and investment transactions of the United States and foreign countries, has had a record for extreme instability in the last ten years, although it has regularly been an offset to the export-trade balance. The year 1932 has proved no exception. On the side of long-term capital, owing to the effects of the succession of financial and political catastrophes in South America and in Europe last year, and to the prevalence of conditions of panic domestically for the first half of 1932, the security markets have been in a state of continuous demoralization. American financial institutions and private investors, consequently, have been unwilling to place any volume of new funds in foreign security offerings. Under these circumstances, a total of only \$7,000,000 of such issues (minus refunding) were offered in the first nine months, as compared with \$229,000,000 in the same period of 1931, \$735,000,000 in 1930 and \$538,000,000 in 1929, all regarded as poor years for foreign securities. In addition, the number of new American investment in foreign branch factories and properties reported has evidently been smaller than in the previous years, although currency depreciation may have had the effect of stimulating it in certain countries and

heightened tariff barriers in others. This was apparently true in 1931, when, despite extremely adverse conditions, American direct investments amounted to \$186,000,000 net as against \$234,000,000 net in 1930.

Open Market Dealings.—Capital exports on account of open market security dealings in American and foreign securities in 1931 amounted to \$842,000,000, while capital imports amounted to \$1,248,000,000, leaving a net import balance of \$406,000,000. This net import balance compares with one of \$554,000,000 in 1930. During the first six months of 1932, foreigners, especially Europeans, were undoubtedly more generally sellers of American securities than buyers, due to widespread fear of inflation and possible renouncement of the gold standard by the United States. In the third quarter, when such fear subsided and security markets recovered, they were undoubtedly more largely buyers than sellers. In consequence of the short duration of the summer dissipation of fear and security market recovery, it is probable that there was no net movement in the fall months, making a balance on the sales side for the year. Low prices for foreign securities on American markets consistently prevailing through the year undoubtedly have offered an incentive for foreign repurchases of their own securities, especially by original borrowers, although the foreign exchange controls and currency depreciation obtaining for many debtor countries have served to obstruct such purchases. Finally, uncertainties of foreign conditions, together with exchange controls and currency depreciation have operated to check open market investments of Americans abroad. Weighing these offsetting factors together it would appear that 1932 will witness a sharp contraction, though perhaps not an elimination of the substantial capital imports balance of the past two years as a result of international open market investment dealings.

Short-term Capital Investment.—On the short-term capital side, the main tide for the year was again an

outflowing one, owing to the widespread liquidation of foreign short-term investments in the United States and the inability of Americans to liquidate their short-term commitments with foreigners. This represented a repetition of developments in 1931 when foreigners reduced their short-term investments here by \$1,275,000,000, or 47%, while Americans reduced theirs abroad by \$510,000,000, or 28%. Foreign short-term investments in American markets at the beginning of the year totalled \$1,462,000,000, and in the first six months of 1932 were reduced approximately 50%. American short-term investments abroad, on the other hand, totalled \$1,292,000,000 at the turn of the year, but because of their foreign character, were not capable of reduction by an amount offsetting that occurring for foreign short-term investments here. Assuming that changes in subsequent months were of minor importance, as current evidence would suggest, the record for the year will again be on the capital export side, due to the preponderating repatriation of foreign funds abroad. The net result will be to leave the United States a net creditor on short-term account for the first time since the immediate post-war years, a position which greatly facilitates the ability of the Federal Reserve System, the guardian of the nation's gold supplies, to pursue easy credit policies without fear of their effects being counteracted by the sudden conversion and withdrawal of foreign short-term investments here in gold.

THE CAPITAL INCOME ACCOUNT

From 1922 to 1930, official estimate of the international income balance of the United States have shown a gradual upward trend, reflecting the more rapidly growing creditor than debtor account for the nation as a whole. The year 1931 experienced a sharp reversal of this trend. While the nation's income balance on private and governmental debts (including all payments on governmental debt accounts in this balance)

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grew from \$569,000,000 in 1922 to \$857,000,000 in 1930, in 1931 it amounted to only \$661,000,000. Mounting defaults on South American bonds totalling more than \$800,000,000, the adverse effects of foreign economic conditions on the profits of American branch factories and properties abroad, and the consequences of the Hoover Moratorium, eliminating all political debt payments for one year from July 1, were the principal factors in this reduction of the income balance last year. Since all of these factors continued to affect this balance in 1932, indeed, became aggravated by new defaults, further reductions in the earnings of American direct investments and new arrangements with respect to governmental debt payments, it may be expected that the income balance may recede below that of 1932.

THE GOLD BALANCE

When gold standard conditions widely prevail, gold is the balancing or cash factor in international trade. For the most part, it moves when recourse to all other measures for adjusting international balances have been temporarily exhausted, but its movements are not ordinarily excessive, and for any one country they do partially cancel out. It is true, however, that, generally speaking, any country which is predominantly an international creditor acts as a magnet for gold, and only by continuously investing abroad can it effectually repel gold from its shores. When it stops lending abroad for

any reason, gold imports quickly exceed exports.

The international creditor position of the United States, acquired during the World War, has been an important factor in America's ability to draw gold on balance from foreign sources in post-war years. In only three years from 1921 to 1929 did the effects of our foreign lending lead to a gold export balance. With the advent of economic depression, with its checks on foreign lending, American gold drawing power was enhanced. Thus gold imports in 1930 (with allowances for changes in the earmarked gold accounts of foreigners with the Federal Reserve System) amounted to \$410,000,000, as against exports of \$142,000,000 (the movement for the first nine months being \$311,000,000 as against \$104,000,000). Similarly in the first nine months of 1931, imports totalled \$481,000,000, as against exports of \$353,000,000, but in the last three months exports amounted to \$566,000,000 and imports to \$253,000,000. This reversal of movement of the last three months of 1931 also characterized the first nine months of 1932, with total exports, including earmarkings, amounting to \$860,000,000, and imports, including releases from earmarkings, of \$563,000,000, or an export balance of \$297,000,000. While the gold outflow seemed to have terminated by September, it would appear unlikely that the export balance would be entirely eliminated by an import movement in the last quarter of the year.

CONDITIONS OF INTERNAL COMMERCE

BY ADA LILLIAN BUSH

BUSINESS ANALYST, BUREAU OF FOREIGN AND DOMESTIC COMMERCE
DEPARTMENT OF COMMERCE

BASIC PRODUCTION

Declines. — Continued worldwide economic disturbances and the uncertainties of an election year contributed to production declines in the United States. Industrial output was

21 per cent less than in 1931. Contrary to the previous year, which held an early return of more than seasonal proportions in industrial activity, with a drop in the fifth month followed by an uninterrupted decline to the end

CONDITIONS OF INTERNAL COMMERCE

of the year, 1932 showed a persistent downward trend through the first half, culminating in a new low point in July. The slight upward movement, noticeable in August, continued during succeeding months with seasonal slowing down toward the end of the year, but no return to the low level of midsummer.

Summary for Major Groups.—Among individual industries, automobiles and textiles failed to follow the trend toward improvement. With total output for the first ten months of the current year 45.2 per cent below that for the same period in 1931, automobile production fell in October to the lowest point of the present decline, but made some gains in November. Textile production showed slight recessions in October instead of the usual seasonal gains. Steel ingots and steel castings for the first ten months dropped 49.6 and 61.7 per cent, respectively, and pig iron production fell 53.6 per cent below the preceding year. However, in contrast with the tenth month in 1931, when iron and steel production was 26 per cent below the ten-month average, October, 1932 held more than a seasonal gain for this industry. Chemicals, lumber, cement, and electric power industries all followed the general record of curtailed activity during the first half of the year with gains in August that were sustained through succeeding months as far as reports are now available. Mineral production, as compared with 1931, declined less than manufacturing. Volume gains in agricultural production were more than offset by the low market price. Construction contracts, measured in footage, at no time after the August gains returned to the lowest level of the current year, or rose far above the December low for 1931. The value of construction in 1932 totaled approximately \$3,200,000,000 less than for the previous year. Lower costs account for a part of this difference.

DISTRIBUTION MOVEMENT

The total number of freight car loadings declined approximately one-fourth from the 1931 low record, though more than a normal seasonal

increase began in the tenth month. Department store sales, in dollar volume, dropped about 22 per cent below sales in the preceding year. Lower retail prices account for a large part of this decline. Mail order house sales also showed pronounced declines in value. Stocks of goods in retail stores have been materially reduced and, in many cases, are reported as too low for efficient business.

EMPLOYMENT AND LABOR CONDITIONS

Production declines in 1932 were, of course, accompanied by decreased employment. Here again there is some encouragement in the fact that since the extreme low point in the middle of the year there has been improvement. During October,—the last month reported at this time—employment in 17 major industrial groups increased 1.1 per cent over September, and payrolls 3.8 per cent. The bituminous coal industry showed an employment increase over September of 7.4 per cent and a payroll increase of 25 per cent. For the anthracite group increases were 15 and 42 per cent. Normal gains developed in retail trade employment, but in factory employment the October upturn was contra-seasonal and a continuation of the trend that began in August. Despite this improvement, factory employment for the year fell about 17 per cent below the 1931 total and payrolls decreased about 37 per cent. Hourly factory earnings of 25 manufacturing industries, as computed by the National Industrial Conference Board, have continued to decline since 1930, when efforts to maintain wage rates were generally successful. Less disturbance from industrial disputes in 1931 than during the boom of 1929 or the depression of 1920-21 indicates a remarkable growth in understanding between capital and labor, and progress in cooperation.

PRICES, COST OF LIVING AND PURCHASING POWER

The combined index of wholesale prices during the first six months of 1932 declined slightly from the December low point in 1931. After an

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upward turn for three consecutive months, wholesale prices wavered through October but showed a distinctly firming tendency in November. Farm prices, and retail prices for food continue to decline through the late months and the cost of living was further reduced. The retail price index for department stores in 1932 averaged 18 per cent below 1931. Toward the close of the year security prices were fractionally below the levels of the first quarter. Various factors combined to bring heavy losses in purchasing power.

CREDIT AND FINANCE

In view of the rise and fall in value of currencies of other nations, a notable achievement of 1932 was the maintained stability of the dollar. Unprecedented efforts were made to safeguard our credit and financial structure. New legislative measures served to make possible the extension of government credit to banking institutions, provide funds for loans to public and private employers of labor, reduce the volume of farm and other foreclosures, and to strengthen this country's ability to withstand the drain on its gold reserves. During the latter part of the year various factors indicated financial improvement. Bank failures remained at comparatively low levels. There was evidence of marked decrease in hoarding. The continued flow of gold to the United States eased the general money market and credit conditions, and indicated growing confidence abroad in the stability of the dollar.

THE BUSINESS OUTLOOK

The statistical picture of 1932 business provides an interesting record. It can do little more. In view of worldwide unprecedented conditions, and the uncertainties of human reaction to the exigencies of a reflected depression, no charted lines showing the recent course of business and

comparisons with past performances can furnish a true index to prospects for next year. Trends that ordinarily would be regarded as hopeful signs for the future, are the year-end tendencies toward business upturn, more cooperative effort among factors of commerce, large bank reserves, low stocks of manufactured goods together with a latent demand for commodities, new placements on the market of improved models of automobiles and other scientifically perfected consumer goods, unabated public and private search for weaknesses and remedies in our marketing system, and a gradual development rather than hectic ups and downs in the current year's record.

On the other hand, it can be argued that there is little comfort in an array of statistics which too plainly reveal that 1932 held only slight variations from the low point in 1931's decline, and that the encouraging factors in present conditions of internal commerce could swiftly change with the intrusion of new problems in foreign relations, and instabilities arising from various intangible forces that conceivably might move in the wrong direction. The severity of a prolonged depression has inured many of our people to new habits of self-denial, to more serious thought, and greater caution in transcribing desire into action. The tendencies that contribute to permanent economic rebuilding may work against speedy recovery. An extremely important development, is the consumer's growing sense of shared-responsibility for unprofitable operations in producer-distributor-consumer business. The year 1931 held instances of consumer initiative in organized cooperation to accomplish commercial research having for its objective the scientific reduction of production and distribution costs and sound rebuilding of the earning and buying power of our domestic market.

RAILROADS

RAILROADS

BY R. H. AISHTON

PRESIDENT, AMERICAN RAILWAY ASSOCIATION

GENERAL

Current Trends.—Railroads of the United States in 1932 experienced their third successive year of declining traffic and declining earnings. This experience grew out of the major economic depression which began in the Fall of 1929, and which continued through the first six months of 1932. Despite every measure of economy undertaken by railway managements, including a voluntary but temporary reduction of ten per cent in railway wage rates, net income again declined heavily in 1932. Extraordinary measures were taken by railway management and by the government to maintain railroad credit and to safeguard the payment of interest on railroad funded obligations, and these were almost the only encouraging elements in the year's record. Toward the end of the year, rail traffic and revenues showed some improvement, although they were far below the normal levels of the past.

Railroad Credit Corporation.—The railroads in 1931 applied to the Interstate Commerce Commission for authority to increase all freight rates and charges by 15 per cent, to enable them to cope with the serious financial position they occupied even then. The Commission denied the application in October, but as an alternative suggested specific increases per car or per hundred weight on certain designated commodities, the increases to continue in effect only to the end of March, 1933, and the revenues derived from the increases to be pooled and distributed to those carriers which should fail to earn their interest charges. The increases suggested were considerably below the general 15 per cent increase asked by the carriers. In accordance with the Commission's suggestion, the railways worked out details of a pooling plan. With the general approval of the Commission, this plan,

known as the Marshaling and Distributing Plan, 1931, became operative on Jan. 4, 1932, when the temporary increases in rates went into effect. The plan contemplated the distribution of the pooled funds on the basis of loans to carriers whose earnings should prove insufficient to meet their interest obligations. The Railroad Credit Corporation was organized by the railroads to carry out the plan. Receipts derived from the temporary increases are paid in to the Corporation, and are loaned by the Corporation to carriers as indicated. On Oct. 31, 1932, loans made by the Corporation to participating carriers, less payments on account, amounted to \$34,376,219. It is estimated that during the 15 months in which the plan will function (Jan. 4, 1932 to Mar. 31, 1933), a total of \$75,000,000 will be made available to carriers who are unable to meet their fixed charges from earnings. This is about \$50,000,000 short of the estimated receipts from the emergency rates, as stated by the Commission in its original report.

Reconstruction Finance Corporation.—Congress in January enacted a bill creating the Reconstruction Finance Corporation, which had been recommended by the President's annual message of Dec. 8, 1931. The act was approved Jan. 22, and the Corporation began operations on Feb. 2. Under the terms of the act, the Corporation was capitalized at a maximum of \$2,000,000,000, and was authorized to make loans on property security to specified types of financial institutions and to railroads engaged in interstate commerce. In the case of loans to railroads, approval of the Interstate Commerce Commission must be secured, before the Reconstruction Finance Corporation may act upon them. To the close of business on Sept. 30, 1932, the Corporation had loaned a total of \$1,194,601,566 to aid agriculture,

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commerce and industry to recover from the depression. During that same period loans aggregating \$264,366,933 were authorized to railroad managements and receivers.

I. C. C. Decisions and Hearings.—

No important rate decisions were handed down by the Interstate Commerce Commission during 1932, although a number of general cases were under consideration, such as those relating to rates on petroleum, non-ferrous metals, newsprint paper, grain, etc. Hearings on grain rates in the Western District were reopened on April 20, 1932. The Commission's report on Coordination of Motor Transportation, I. C. C. Docket 23,400, was released on April 6, 1932. Among other things, the report found that "Federal legislation relating to the regulation of motor vehicles operating upon the public highways and engaged in interstate commerce is desirable in the public interest."

Consolidation. — The so-called "four-party" plan of Eastern railroads to group rail lines in the East into four principal systems continued to receive consideration from the Interstate Commerce Commission. The Commission issued a report on July 13, 1932, modifying in part the plan submitted by the carriers. Informal negotiations looking toward a conclusion of the matter are continuing.

Employees and Wages.—Representatives of railway managements and employees signed an agreement at Chicago, Jan. 31, 1932, under which employees agreed to accept for a period of one year, beginning Feb. 1, 1932, a reduction of 10 per cent from their standard wage scales. Preliminary negotiations regarding the course to be followed at the expiration of this agreement, namely, Jan. 31, 1933, were delayed at governmental suggestion until late 1932.

Competition. — Motor buses and motor trucks, operating commercially on publicly-constructed highways, continued to make inroads into railway traffic during 1932. Competition from other agencies of transportation, particularly the government-owned and operated water carrier on

the Mississippi and Warrior Rivers, likewise increased during the year. No Federal legislative action was taken during 1932 to provide equality of opportunity for all forms of transportation, either by relaxing regulation of the railways, or by applying a corresponding degree of regulation to competing agencies of transportation, or by removing from inland waterways government-operated freight carriers in competition with railway freight service.

St. Lawrence Waterway Treaty.— On July 18, 1932, the Secretary of State of the United States and the Minister of the Dominion of Canada in the United States signed a treaty for the construction of the Great Lakes-St. Lawrence Deep Waterway. The Joint Board of Engineers, appointed by the two governments to study the engineering features of the plan, estimated that the cost of the entire waterway from the Great Lakes to Montreal (including the cost of certain improvements already made or under way, and including collateral power works) will amount to \$543,429,000. This amount, it is estimated, will be distributed between the two countries as follows: United States, \$272,453,000, and Canada, \$270,976,000. The treaty has not been ratified by the legislative body of either country. If the plan is carried out the railways of both countries will be subjected to further competition from government-subsidized waterways.

RAILROAD FACILITIES

Mileage.—The average miles of road operated by Class I rail carriers in the United States (Class I roads are those whose annual gross incomes are \$1,000,000 or more, excluding switching and terminal companies) were 242,159 miles in 1930, 242,176 in 1931, and 241,596 during the first eight months of 1932. Total track mileage of all railways was 429,883 in 1930 and 429,823 in 1931; track miles include second, third, and fourth main tracks, yard tracks, and sidings. Class I carriers of the country operate about 92 per cent of the total steam railway mileage and,

RAILROADS

due to the long-haul service which they perform, they earn a somewhat larger proportion, or about 97 per cent, of total rail revenues.

Cars and Locomotives.—Class I railways in 1930 had in service 52,130 passenger train cars, and 50,747 in 1931. The number of locomotives in service on Class I railroads in 1930 was 56,582, and declined to 55,149 in 1931. Increase in average tractive power has characterized the steam locomotive for many years. Average tractive power per locomotive was 28,305 pounds in 1911, 40,666 pounds in 1925, 45,225 pounds in 1930, and 45,764 pounds in 1931. From 1911 to 1925, the actual number of railroad-owned freight-carrying cars owned by Class I railways in the United States steadily increased. The total number of these cars in 1911 was 2,117,644. In 1925 the number was 2,357,234, which marks the peak of ownership as to number of cars. Since 1925 there has been a steady decrease in the number of freight cars, the number in 1931 being 2,201,510 cars. The carrying capacity per unit, however, has shown a continuing increase. For example, the average capacity per car in 1925 was 44.8 tons, while in 1930 it was 46.6 tons, and increased in 1931 to 47.0 tons. The older type of smaller capacity freight cars is being displaced by new equipment of greater unit capacity, so much so that despite the decline in number of units between 1925 and 1931, the aggregate capacity of all cars in service increased.

RAILWAY FINANCES

Property Investment. — Total investment in road and equipment of Class I railways at the end of 1930 was \$25,485,622,833. This increased in 1931 to \$25,539,591,290. Material and supplies in 1930 amounted to \$430,989,284, and \$374,331,572 in 1931. Working capital or cash on hand amounted to \$438,074,144 in 1930 and \$328,933,358 in 1931. The aggregate property investment, including road and equipment, material and supplies, and cash, amounted to

\$26,354,686,261 in 1930 and \$26,242,856,220 in 1931.

Improvements.—Gross capital expenditures of Class I railways for additions and betterments to railway property, totalled \$361,912,000 in the year 1931, compared with an expenditure of \$372,608,000 during 1930. The aggregate expenditure of \$361,912,000 during 1931 was distributed as follows: \$73,105,000 invested in locomotives, freight and passenger train cars, and other equipment; \$288,807,000 invested in improvements to roadway and structures.

EMPLOYMENT

The average number of employees on Class I railways was 1,487,839 in 1930 and 1,258,719 in 1931. The total amount of compensation to these employees was \$2,550,788,59 in 1930, and \$2,094,994,379 in 1931. Average hourly compensation per employee was 67.8 cents in 1930 and 61.9 cents in 1931. Because overtime and other hours on duty declined in 1931, average annual earnings per employee decreased from \$1,714.42 in 1930 to \$1,664.39 in 1931.

TRAFFIC AND REVENUES

Freight.—Total freight revenues received by Class I carriers amounted to \$4,083,241,558 in 1930 and \$3,254,668,001 in 1931. For the nine months ended Sept. 30, 1932, total freight revenues were \$1,815,695,966, compared with \$2,513,044,421 for the same period in 1931, a reduction of 27.7 per cent from 1931 to 1932. Average receipts per ton-mile in 1930 were 1.063 cents and in 1931 were 1.051 cents. Revenue ton-miles in 1930 aggregated 383,449,588,491, and in 1931 were 309,224,879,222. The average load per loaded car originated was 35.7 tons in 1930 and 35.4 tons in 1931, exclusive of less than carload merchandise. Rail carriers have continued to maintain the high level of transportation service which has characterized them in recent years. This high level of transportation service is due primarily to the large capital expenditures which the carriers have made since 1922. A second important factor is cooperation among the carriers themselves,

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and between shippers and carriers. As a result, car shortages no longer occur. The daily freight car surplus averaged 611,853 serviceable cars in 1931, compared with annual averages of 456,378 cars for the year 1930, and 233,956 for 1929.

Passenger.—Total passenger revenues of Class I railways were \$729,470,279 in 1930, and \$551,047,483 in 1931. Average receipts per passenger-mile were 2.717 cents in 1930 and 2.513 cents in 1931. The record shows an almost continuous decline in the number of revenue passengers carried by Class I railways since 1920, in which year the number of revenue passengers was 1,234,862,048. This declined to 703,598,121 in 1930 and 596,390,924 in 1931. Revenue passenger-miles totaled 46,848,667,987 in 1920, declined to 26,814,824,535 in 1930, and further declined to 21,894,420,536 in 1931. Passenger train miles have been reduced from 567,705,310 miles in 1920 to 485,323,535 miles in 1931, but the railroads have maintained their passenger service at a high degree of excellence. Speed has been maintained, and new comforts have been added to attract the traveling public. In connection with coordinated bus services, some railways have discontinued operation of certain passenger trains rendered unprofitable by competition of motor vehicles on improved highways.

REVENUES AND EXPENSES

Operating Revenues.—Total operating revenues of the Class I railways were \$5,281,196,870 in 1930 and \$4,188,343,244 in 1931. For the first nine months of 1932, total operating revenues were \$2,337,507,960 for Class I railways, compared with \$3,242,041,840 for the corresponding period of 1931. Thus operating revenues declined 27.9 per cent in 1932.

Operating Expenses.—Total operating expenses of the Class I railways for 1930 were \$3,930,928,687 and were reduced to \$3,223,574,616 in 1931. For the nine months ended Sept. 30, 1932, total operating expenses for Class I railways were \$1,831,670,270 compared with \$2,496,

567,511 for the corresponding period of 1931, a decrease of 26.6 per cent in 1932.

Net Railway Operating Income.—Net railway operating income for Class I railways was \$868,878,773 in 1930, and \$525,627,852 in 1931. For the nine-month period ended Sept. 30, 1932, the net railway operating income was \$196,766,801, compared with \$401,150,037 for the corresponding period of 1931, a decrease of 50.9 per cent in 1932.

Operating Ratio.—The operating ratio for Class I railways was 74.43 per cent in 1930 and 76.97 per cent in 1931. For the period of nine months ended Sept. 30, 1932, the operating ratio was 78.36 per cent, compared with 77.01 per cent for the corresponding period of 1931.

Taxes.—Railway tax accruals for Class I railways for 1930 were \$348,553,953 and for 1931 amounted to \$303,528,099. The decline in the total of tax payments was due to the smaller amount of Federal and state income and revenue taxes, which in turn resulted from the decline in railway revenues and net income. Class I railways paid to state and local governments taxes to the amount of \$308,220,733 in 1930 and \$293,100,089 in 1931. For the first nine months of 1932, railway tax accruals aggregated \$218,014,315. In relation to gross operating revenues, taxes consumed 5.0 cents out of every dollar taken in by the railroads in 1921, 6.6 cents in 1930, 7.2 cents in 1931, and 9.3 cents for the first nine months of 1932.

Rate of Return.—The rate of return on investment in road and equipment of Class I railways, including materials, supplies and cash on hand, averaged 3.30 per cent in 1930 and 2.00 per cent in 1931. For the nine months ended Sept. 30, 1932, the corresponding rate of return was 1.02 per cent, compared with 2.07 per cent for the corresponding period of 1931. These rates of return are based on net revenue (gross revenue less operating expenses and taxes), but before the payment of interest and other fixed charges.

HIGHWAYS

RAILROAD PURCHASES

Taken as a whole, the railways of the United States represent probably the largest single purchaser of the products of the basic industries of the country. They use or consume annually about 25 per cent of the total bituminous coal production and, in addition, about five per cent of the total anthracite production in the United States. Their fuel requirements also include about 20 per cent of the total fuel oil output. Directly and indirectly, the railroads normally consume more than 20 per cent of the total timber cut of the country, and approximately 17 per cent of the total iron and steel production. The fuel bill of Class I railways in 1931 amounted to \$224,200,000. Their direct purchases of forest products equalled \$75,500,000. Expenditures for iron and steel products equalled \$220,000,000. The grand total of their purchases in 1931 was \$695,000,000. In normal times railway purchases of materials and supplies approximated \$1,250,000,000 annually.

RAILWAY MAINTENANCE

Total expenditures made by Class

I railways for maintenance of way and structures in 1930 were \$705,470,940, and \$530,612,890 in 1931. The total expenditures of the same carriers for maintenance of equipment were \$1,019,265,278 in 1930 and \$816,953,491 in 1931. The percentage of freight cars awaiting repairs on Oct. 1, 1932, was 12.4 per cent of the total number, while the proportion of locomotives awaiting classified repairs at the same date was 17.1 per cent. Locomotives in storage Oct. 1, 1932, numbered 10,174, compared with 9,871 on the same day of 1931. Idle or surplus freight cars on the same date in 1932 numbered 598,622, compared with 564,284 on Oct. 1, 1931.

The safety record of the railways in 1932, for both freight and passenger services, surpassed the excellent records of recent years. Both the number of accidents and the frequency of accidents per traffic unit have declined steadily during the past ten years. During the last three years, a period of reduced operating expenses, the high standards of safety set by the railroads in 1923 have been maintained.

HIGHWAYS

BY THOMAS H. MACDONALD

CHIEF, BUREAU OF PUBLIC ROADS, DEPARTMENT OF AGRICULTURE

IMPROVEMENT OF STATE HIGHWAYS

Mileage.—In 1931 the construction of State highways continued at substantially the same rate as for other recent years. Nearly 35,000 miles of road were surfaced, bringing the surfaced roads of State systems to 242,700 miles. The State systems consist of 328,942 miles of road which are of State-wide importance to those States in which they are located. The more important State routes have been selected to make up the Federal-aid system and from this system, in turn, the U. S. highways have been selected.

Surfacing.—At the end of 1931 only 96,341 miles of the State sys-

tems had been improved with high-type surfaces such as bituminous macadam, bituminous concrete, Portland cement concrete and block types. Low-type surfaces such as waterbound macadam, gravel and sand clay comprised 146,359 miles and 86,242 miles were then unsurfaced. Steady construction progress has been made for several years and a number of States have surfaced or are nearing the completion of surfacing of the State system. However, no State is as yet nearing the completion of its State system in accordance with the present requirements of traffic. The most advanced States still have a considerable mileage of road where the volume of

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traffic carried requires a higher type of surface. Much relocation and straightening of roads and road widening near large cities is also necessary.

Road Width.—A width of 20 feet is now recognized as desirable for two-lane surfaces on through routes and this width is entirely adequate for the greater portion of rural highways. However, near our large cities there are many highways which now require or will require greater width. A recent survey shows that the State systems contain 3,690 miles of road having three or more traffic lanes. Of this mileage, 1,008 miles were constructed in 1931. Where extra wide roads are required the trend is toward four-lane surfaces which recent investigations show to be capable of carrying three times as much traffic as a two-lane surface without congestion.

Employment.—At the peak of the construction season in August of 1931 273,000 men were employed on construction and 117,000 on maintenance, making a total of 390,000 men directly employed on State and Federal road work. The number employed varied from month to month, the average monthly employment being 285,000. These figures do not represent the total employment resulting from State road work since for every man employed directly on construction at least two others are employed in producing materials, equipment and by transportation agencies.

Funds.—Continuation of State road work in 1931 without the marked decline shown in other industries was due in large part to the self-supporting nature of these highways. Funds for construction and maintenance are drawn in large part from taxation of gasoline and motor vehicles and these revenues did not fall off greatly. The appropriation by Congress of \$80,000,000 to be advanced to the States for use by them in matching the regular Federal-aid funds available was also an important factor.

Expenditures.—The State highway departments expended a total of

\$979,592,000 for State highway purposes in 1931. This expenditure was composed of \$730,955,000 for construction and right of way, \$160,980,000 for maintenance, \$21,482,000 for equipment and machinery, \$61,862,000 for interest on bonds and notes and \$4,313,000 for miscellaneous expenses.

Income.—The total State highway income during the year amounted to \$1,092,637,000 composed of \$696,167,000 from State revenue sources, \$265,856,000 contributions from Federal and local sources and \$130,614,000 from the sale of bonds and notes. Of the \$696,167,000 derived from State sources \$55,372,000 was derived from direct property taxes and from appropriations and miscellaneous sources based principally on property taxation and \$640,795,000 or 92 per cent was derived from taxation of motor vehicles or gasoline and bridge tolls.

FEDERAL-AID ROAD IMPROVEMENT

Mileage.—The record of Federal-aid road construction in the fiscal year ended June 30, 1932, is distinguished by the addition of a greater mileage of improved roads than in any previous year. The 15,997 miles on which improvements were completed is nearly a sixth of the total mileage improved with Federal Aid since the passage of the Federal-aid road act in 1916. The increase in mileage improved is mainly the realization of the results of increasing the annual authorization from \$75,000,000 to \$125,000,000 beginning with the fiscal year 1931 and the emergency appropriation of December, 1930, of \$80,000,000 for road work for the relief of unemployment.

Surfacing.—The Federal-aid system consists of 200,013 miles which are the most important routes of the State system and connecting links through Federal reservation. The Federal Government has participated in the improvement of 101,032 miles composed of 43,487 miles of bituminous macadam and higher types, 45,323 miles of macadam, gravel and sand clay and 12,222 miles of graded earth. The States have also made

considerable improvement on the system without Federal Aid and further improved some of the Federal-aid construction. The entire system is now more than four-fifths surfaced. However, much of this surfacing is of low type which is satisfactory for present traffic but which will have to be raised to a higher type within a few years. The percentage of the system reported as surfaced is somewhat less than that of a few years ago. This is the result of additions to the system which, under the provision of the law, can be made as completion of the initial system in any State is approached.

Construction Policy.—The policy of stage construction has been used to a considerable extent in the improvement of the system. Under this policy those roads on which only light and medium traffic is anticipated in the years immediately following construction are improved only to an extent consistent with the immediate traffic needs. This policy has permitted more rapid development of the system but it has been definitely planned that higher types of surface will be placed as needed, making use of the original improvement as a base. For several years there has been a steady increase in the ratio of stage construction to initial construction. In the last fiscal year the 4,925 miles of Federal-aid road on which further improvements were made represented 44.6 per cent of the roads improved with Federal Aid for the first time.

Funds and Employment.—The regular Federal-aid funds and the emergency appropriation of \$80,000,000 of December 20, 1930, were important factors in providing employment during the fiscal year 1932. The emergency funds were advanced to States for use by them in matching the regular Federal-aid funds available and to be reimbursed to the Federal Treasury by deductions from anticipated future apportionments of Federal aid. This appropriation was an emergency measure designed to supplement depleted State revenues and permit increased employment on road work. The emergency measure

had the desired effect of hastening the beginning and increasing the volume of road construction work. The employment of labor on road projects supported in whole or in part with Federal funds rose sharply from 31,300 men in January, 1931, to nearly 55,000 in March and to a peak of 164,700 men in July. Thereafter the number employed dropped to 151,400 in August and in September with the emergency funds exhausted to 116,000. However the indirect benefits of the emergency appropriation continued throughout the calendar year and well into the spring of 1932. For, with the Federal loan exhausted, the State funds saved from expenditure earlier in the season were still available for the continuance of work in greater than the seasonal volume.

Additional Loans to States.—In July, 1932, Congress provided an additional loan of \$120,000,000 to be advanced to the States for emergency road work. As this is written in October, many road projects which would not otherwise be undertaken are getting under way and this policy will prevent such distress in the coming winter. There is general agreement among highway officials that 80 to 90 per cent of the road dollar is eventually distributed back to labor and personnel employment.

CHARACTER OF HIGHWAY TRAFFIC

The use of highways has developed rapidly within the last 10 or 15 years and there is now an intimate relationship between our whole population and highway transport. It is worth while to consider some aspects of this transport, particularly since a tremendous amount of false information with regard to it has been circulated. Much emphasis has been placed upon a relatively small part of highway usage and the consequent dislocation of the prior flow lines of traffic. Since 1922 the Bureau of Public Roads, in cooperation with a large number of State highway departments has been making studies of highway traffic and transport. Here are some of the facts found in these studies:

First, the predominating use of the

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highways is by privately-owned passenger automobiles. In eleven western States, on the Federal-aid system alone there were more than 20,000,000 daily passenger-car-miles of road usage. In the States of Pennsylvania and Ohio this usage ran to about 6,000,000 miles daily. This immense use approximates 85 to 90 per cent of the total volume of highway utilization.

Second, the use of the highways by either automobiles or motor trucks is predominantly local, taking the States as a whole. In such States as Pennsylvania and Ohio, typical of the more thickly populated, this local use is from 85 to 90 per cent.

Third, the predominating volume use of the roads by both automobiles and trucks is for short distances, that is, above half of the use will be under 30 miles.

Fourth, the ownership of both automobiles and trucks in use on the highways is predominantly private.

Since there has been a notable drop in the amount of transportation required, particularly for local service, there has been growth in the longer distance travel of busses and trucks. They, like many others, are seeking employment. There has been a certain amount of business taken over from the railroads by trucks and busses operated in the public or common carrier service, but this is an inconsequential part of the total volume use of the roads.

A great change has taken place in methods of merchandising. There has been a change from relatively large to much smaller inventories, resulting from highway transportation quickly and easily available. This change is having a profound effect upon transportation methods. For example, in Ohio, out of a grand total of 84,000 retail establishments, 36,000, or 43 per cent, handle goods that require daily replenishment. In Maryland, of a grand total of retail establishments of 21,000, about 9,000, or 42 per cent handle supplies that are replenished day by day. These are only two instances that indicate in a concrete way a service which

has become established as a daily highway use.

HIGHWAY DESIGN

Progress.—Great progress has been made in designing highways to carry the loads which they are called upon to carry. This progress has been, in large part, in matters such as design of pavement thickness, grading of aggregates, water content of concrete, adapting design to subgrade conditions, better machines for manipulating and handling materials and new types of low-cost bituminous surfaces.

Surfaces and Wear.—Our State highway departments throughout the country are now building high-type surfaces on their main traffic routes which carry the traffic without appreciable wear or deterioration. We are frequently asked what is the relative wear on high types of pavement by different types of vehicles. When the total wear is such that traffic lines painted on the road surface last for many months it is difficult to distinguish between that caused by different kinds of vehicles. Our knowledge of design is such that surfaces can be built to carry all legal wheel loads with a margin of safety. The general use of pneumatic instead of solid tires has greatly reduced the impacts applied to pavements.

Subgrade.—Engineers now give much more attention to the character of the subgrade on which the road is built than they did in earlier years. Research has produced information which enables him to identify those soils lacking in supporting value or with other harmful characteristics and to take these things into account in designing the surface. This problem is by no means completely solved but has progressed to the point where the more serious conditions can be provided for.

Surfaces and Treatment.—Improvements in the surfacing of high-type roads are not evident to the road user except through the absence of deterioration of the surface. However, in the field of low-type surfaces

MOTOR BUS INDUSTRY

marked and evident improvements have been made. More than three-fourths of our rural road surfaces consist of gravel, sand-clay and similar low types. A great annual loss has been incurred through the wearing down of these surfaces and the attendant inconvenience and menace of dust. On many secondary roads of these types the traffic has grown to equal that on the main roads a decade or two ago, and because of limited funds available annually the surfaces could not be quickly improved to the ultimately desirable higher standard. First attempts at

bituminous treatment of these surfaces were generally unsatisfactory but with the development of specially adapted light bituminous products and experimentation with construction methods excellent surfaces can now be built. A variety of methods involving surface treatment and mixing on the road surface have been developed. The successful development of these relatively smooth and dustless surfaces with greater traffic capacity which can be constructed at low cost is of great importance in solving the problem of secondary roads.

MOTOR BUS INDUSTRY

BY CARL W. STOCKS

EDITOR, *Bus Transportation*

RECONSTRUCTION PHASE

Meeting Revenue Losses.—The bus industry suffered during 1932 from the same malady which afflicted every other American industry. It struggled successfully all recent reports indicate—to surmount the destructive effect of sustained decreases in operating revenue. Fortunately, the industry is better off than other forms of transportation, because, in part, of its ability to keep expenses down reasonably well with the decrease in revenues, due to the decline in traffic volume of close to 8 per cent.

Operating Adjustments. — During 1932 the bus industry was confronted with many new and perplexing problems. Managements made every effort to face their difficulties courageously and, in an effort to hold and increase traffic and to improve operating methods and practices, previous ideas were remodeled to fit a new conception of present-day needs. Wide-awake bus companies are aware of the necessity for making their routes pay on the basis of current traffic volume, and this often involves a complete revision in operating practices if the necessary efficiency and economy is to be se-

cured. In doing this few companies have found it necessary to lower the standard of service; in fact, a consistently high standard has been maintained.

Progress.—Despite the handicaps encountered the bus industry has contrived to go forward during the past year, although at a somewhat slower pace. Expansions have not been as rapid nor as spectacular as in previous years; nevertheless, in cities, buses have for economic reasons secured a firmer foothold and are now handling the largest percentage of riders in the history of the industry. All new operations, however, are not confined to cities.

Company Consolidation.—For some years now there has been a tendency for smaller companies to consolidate. Last year the Short Line system was formed. This system grew out of an association of twenty-one carriers and is the second large trans-continental system to come into being. Mention is also desirable of the attempts being made to eliminate wasteful competition in low revenue territory and of pooling schedules between specific points to give each carrier an equal opportunity.

XIII. MANUFACTURES AND TRANSPORTATION

BUSES AS TRANSPORTATION LINKS

Urban Expansion.—A better understanding and appreciation of the value of buses for transportation work continues to foster expansion by electric railways, and to a lesser extent by steam railroads. The Brooklyn Bus Corporation's installation of bus feeder lines instead of rapid transit lines and surface car lines operated by its parent company, the bus substitution by Eastern Massachusetts Street Railway of its interurban trolley lines and the complete change-over from trolleys to buses which recently was completed at Binghamton, N. Y., and at Saginaw and Pontiac, Mich., are but a few examples of the trend in electric railway circles.

Railroads and Buses.—In the steam railroad field the Reading Transportation Company has secured a restricted certificate to handle local passengers between definite points on its interstate route between New York and Philadelphia. In Mississippi, the Gulf, Mobile and Northern secured the right to parallel its rail lines with buses. The Missouri-Pacific Transportation also has added to its bus holdings through purchase of several connecting carriers in order to open up a through line from St. Louis to Kansas City.

Traffic Agreements.—In an effort to eliminate wasteful competition numerous traffic agreements have been effected. Three major companies in the Southeast during the year agreed to a non-competitive set-up on certain routes through an exchange or purchase of conflicting intra-state certificates. Interline traffic agreements covering a period of ten years have been worked out by Florida Motor Lines, Inc., Colonial Stages South and Atlantic Greyhound Lines.

BUS TRAFFIC

Factors In Expanding Patronage.

—The class of patronage on suburban and intercity bus lines reaching the larger cities in the country is steadily improving. This is due largely to the economy features of the bus as a means of travel, par-

ticularly attractive at this time, and to the advertising done by the carriers which have stressed more and more the convenience and comfort of the route features rather than the attractiveness of the fare. The volume of newspaper and national advertising of bus service has increased during the year. Mention should also be made of the greater use of more attractive literature including less cumbersome and more accurate timetables. Greater effort is apparent to sell round-trip tickets at special rates. Better dependability of bus service is everywhere apparent. Serious accidents are more infrequent and the number is well on the decline as indicated by an analysis of reports to State Automobile Departments. This, too, is reflected in the fact that liability insurance rates have shown no recent upward trend. Contributing factors are the smaller turnover in drivers, safety conduct sponsored by the carriers, the training being given to drivers prone to accidents, and the carriers' own recognition of those drivers who have operated buses for one, two or three years without accident. Much of this, of course, is due to better roads and to better acquaintance on the part of shop and garage force with vehicular ills.

Business Done by the Carriers.

—In the early part of 1932 *Bus Transportation* initiated the first attempt to study the amount of business done by the industry on a quarterly basis. Returns for the period ended Sept. 30, which are the latest figures available, indicate a continuation of lower revenue for the first nine months of the current year as compared with similar periods in 1931. However, on many local properties passenger revenues and number of passengers carried during the months of August and September show an improvement over the two previous months of the current year—a gain which is not wholly seasonal. With employment slowly increasing the industry should be looking for an increased volume of business and many companies are known to be increasing their service. The upturn in traffic,

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however, has not yet gained sufficiently in volume to offset the losses in revenue that occurred in the first six months of the year and as a consequence all figures still indicate a downward trend when compared to those for the first nine months of last year.

Maintenance Expenditures.—Estimates indicate that companies engaged in common carrier service, both city and intercity spent \$117,600,000 during the year for material, supplies, new buses and property additions and improvements. Included in this sum are 7,300 new buses which went into service during 1931, —figures for the current year being not yet available. It is distinctly worth recording that since Jan. 1, 1932, twenty-two new bus models have been developed. Greater activity seemingly has been stimulated among bus manufacturers by economic conditions which have slowed down and in some cases even stopped progress in many other industries. Each new vehicle, every minute improvement in fundamental design is a testimonial to the manufacturer's faith in the future of the bus industry.

BUS DESIGN

New Models. — Twenty-six new models is an accomplishment even during normal times and, for a year in which most activities are supposed to be at a standstill, it is an achievement of which the entire industry can be justly proud. With the recent announcement of a 44-passenger bus with 12-cylinder engine with opposed cylinders by the White Company the box type body design, known to the industry as the automotive street car, is now available in twelve different models produced by five different manufacturers. Tendencies toward streamlining, first apparent to a moderate degree in several designs brought out in 1931, have departed from more conservative bounds in a fully streamlined bus recently developed by the Rex Finance Corporation.

Mechanical Improvements.—Speculating on the future in design, a number of interesting possibilities present themselves. There are rum-

ors that stainless steel construction will be adopted by more than one bus manufacturer and that air conditioned buses are not far off. What with operating economy gaining steadily as a desirable quality, many believe that buses propelled by a Diesel or an adaptation of the Diesel engine, might prove popular at this time. Elimination of the gassing problem to improve carburetion is practically at our doorstep, one manufacturer says. There is the fluid-flywheel recently developed in England which is said to offer interesting possibilities in silent and effortless operation.

LEGISLATION AND TAXATION

Last, but most assuredly not least, important is the matter of legislation and taxation. One feature that may effect the picture adversely is the tendency of legislators everywhere to make it more difficult for motor carriers to earn money. Saddling the industry with a large variety of special taxes and restrictions that affect size, weight and speed means only that the industry becomes a tax collector for the city, state and nation and its patrons of necessity must be called upon to bear the burden.

Even though the carriers operate more economically than ever before and use the class and type of vehicle that can be run most efficiently in their service, they cannot longer meet these increased taxes without higher rates of fare. The year has seen the burden of increased gas taxes in the states and cities, local license fees, a Federal gas tax and a tax on engine lubricating oils, to say nothing of the excise tax on new vehicles, parts, accessories and tires.

In September when the two national bus associations, — National Association of Motor Bus Operators and American Transit Association—met in Chicago the chief features of discussion were the economic problems confronting the industry. These cover taxation, state and Federal legislation, fitting the right vehicle to local routes, developing a satisfactory fare structure.

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Regulation, the principal topic of the National Association of Motor Bus Operators meeting came in for serious consideration. For six years the Association has sought to bring about legislation which would eliminate the chaos existing in the interstate transportation field. When victory appeared most certain at the last session of Congress defeat came as a result of railroad opposition. This fact would seem to nullify the propaganda as to the need for regulation of interstate bus operation which is being disseminated so widely by the railroads. The Association, according to President Arthur M. Hill, is still an advocate of

interstate regulation and is working to the end to get both rail and bus interests together in the hope that out of a series of meetings might come an understanding which will clear up the present unsatisfactory conditions in the transportation field. Steps have already been taken toward a more harmonious understanding between rail and highway interests regarding service. It is now expected that an interstate bus regulatory bill will be reported out at the short session of Congress, but whether or not definite action can be secured will depend on the amount of tax and other legislation requiring preferred consideration.

COMMUNITY TRANSIT

By JOHN A. MILLER
EDITOR, *Transit Journal*

GENERAL

Car Design Research.—Progress in the community transit industry in the United States during 1932 was considerably retarded by the general recession in business activity throughout the country, but a number of significant developments took place in spite of the prevailing unfavorable conditions. Notable among these developments were the research accomplishments in electric rail car design and the continued expansion in trolley bus operations.

Earnings.—Gross earnings of the industry declined slowly but steadily from January to September, reflecting the decrease in employment and activity in other industries during this period. From September onward a slight improvement was discernible, again reflecting the trend of business in general. Preliminary estimates indicate that gross revenues for the entire industry for the year were about \$1,150,000,000, as compared with \$1,307,000,000 for the preceding year. Transit operating costs were reduced as earnings declined but it was found impossible on most properties to make buses, sometimes called trackless trolleys; (6) taxicabs, and (7) electrified suburban railroads. The scope of each sufficient savings to offset the losses in

revenue. As a result the net revenues suffered substantial curtailment. Receiverships were more numerous than in other recent years, but did not assume particularly serious proportions considering the generally disturbed conditions of business and industry.

SCOPE OF THE INDUSTRY

Broadening Indications.—Evidence of the widening scope of the industry was furnished by the action of the American Railway Association in changing its name at its annual business meeting in September to American Transit Association. Similar action had previously been taken by the Canadian Electric Railway Association which became the Canadian Transit Association in June.

Types of Service.—Seven types of public transportation facilities are now operated by the transit industry in the United States. (1) electric street railways, together with a few cable railways; (2) rapid transit lines, both subway and elevated; (3) electric inter-urban railways; (4) motor buses; (5) electric trolley buses, sometimes called trackless trolleys; (6) taxicabs, and (7) electrified suburban railroads. The scope of each of these types of service at the beginning of the year is shown in the following table.

COMMUNITY TRANSIT

UNITED STATES DEPARTMENT OF COMMERCE

City, Suburban and Interurban

(Track and Route Mileage as of January 1, 1932)

Territory Served	Electric Surface Railway Track Mileage	Rapid Transit Line Track Mileage	Electrified Suburban Railroad Track Mileage	Trolley Bus Route Mileage	Motor Bus Route Mileage	Total Track and Bus Route Mileage
13 large cities (over 500,000 population) in U. S.....	7,323	1,110	2,789	76	3,212	14,510
80 intermediate cities (100,000 to 500,000 population) in U. S....	9,616	—	—	88	8,180	17,884
283 small cities (25,000 to 100,000 population) in U. S.....	4,560	—	—	19	3,542	8,121
Total for U. S. cities over 25,000.....	21,499	1,110	2,789	183	14,934	40,515
Communities under 25,000 population in U. S.....	1,019	—	—	—	1,092*	2,111*
Interurban areas in U. S.....	11,356	—	—	—	9,114*	20,470
Total in U. S.....	33,874	1,110	2,789	183	25,140*	63,096*
United States possessions.....	116	—	—	6	62*	184*
Canada.....	2,234	—	85	—	972*	3,291*
Grand total.....	36,224	1,110	2,874	189	26,174*	66,571*

* In communities under 25,000 population and in interurban areas, United States possessions and Canada, the data for motor bus operations include only the service operated under auspices of electric railways.

DISTRIBUTION OF TRANSIT EQUIPMENT

City, Suburban and Interurban

(Electric Rail Cars, Trolley Buses, Motor Buses, Taxicabs, as of January 1, 1932)

Territory Served	Electric Surface Railway Cars	Rapid Transit Cars	Electrified Suburban Railroad Cars	Trolley Buses	Motor Buses	Total Cars and Buses	Organized Taxicabs
13 large cities (over 500,000 population) in U. S.....	23,893	9,542	3,226	137	4,895	41,693	25,300
80 intermediate cities (100,000 to 500,000 population) in U. S....	18,192	—	—	79	6,681	24,952	23,900
283 small cities (25,000 to 100,000 population) in U. S.....	5,985	—	—	9	2,757	8,751	18,300
Total for U. S. cities over 25,000.....	48,070	9,542	3,226	225	14,333	75,396	67,500
Communities under 25,000 population in U. S.....	1,102	—	—	—	636*	1,738*	16,500
Interurban areas in U. S.....	5,050	—	—	—	1,824*	6,874*	—
Total in U. S.....	54,222	9,542	3,226	225	16,793*	84,008*	84,000
United States possessions.....	233	—	—	8	95*	336*	—
Canada.....	4,060	—	12	—	594*	4,666*	—
Grand total.....	58,515	9,542	3,238	233	17,482*	89,010*	84,000

* In communities under 25,000 population and in interurban areas, United States possessions and Canada, the data for motor bus operations include only the service operated under auspices of electrical railways.

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EXPANSION OF PHYSICAL PLANT

At the beginning of the year it was estimated by the operating companies of the industry that a total of about \$300,000,000 would be spent in 1932 for extensions, improvements and maintenance. Since the earnings did not come up to expectations, however, the actual expenditures did not come up to this figure. The number of new electric rail cars purchased was negligible, as was the mileage of track extensions. About 500 new motor buses were brought but these were largely for replacement or substitution in place of rail cars, there being comparatively little expansion into new fields of operation. Purchases of trolley buses continued at a fair rate, but this type of transportation, while expanding steadily, has not yet assumed very extensive proportions in the United States.

U. S. CHAMBER OF COMMERCE STUDY

Special consideration was given during the year by the United States Chamber of Commerce to the problem of city passenger transportation. The subject was carefully studied by an investigating committee and its findings submitted to nation-wide referendum of the Chamber's members. The result of this referendum was the endorsement of ten major principles.

(1) Efficient and coordinated city passenger transportation is vital to stability of property values and orderly development of urban communities.

(2) Investments in existing facilities should be utilized to the fullest extent compatible with the inherent advantages of each form of service.

(3) Cooperation of business leaders, public officials and transportation managements to foster responsible private operation under proper regulation.

(4) Regulation to encourage efficiency of transportation agencies, provide proper coordination among them and prevent unfair competition.

(5) Centralization in a single body of public regulation of local public passenger carriers in each metropolitan area.

(6) Development of differential rates for off-peak and short-haul service.

(7) Taxicab rates, in communities where there is extensive demand for taxicab service, to be designated by regulatory authority upon the basis of costs and reasonable profits, and charges to be determined by the taximeter.

(8) Franchises to be of the indeterminate type and flexible in their terms subject to regulatory authority.

(9) Relief from oppressive taxes, paving requirements, and other unfair burdens.

(10) Traffic regulation to give agencies of mass transportation fair opportunity to function efficiently.

FARES, WAGES AND EMPLOYMENT

Comparatively little change occurred during the year in transit fares. At the beginning of the year the weighted average of street railway fares in the United States, excluding New York City, was 7.85 cents. Fluctuations during 1932 changed this figure by less than 0.05 cents. Bus fares for operations under electric railway management averaged slightly higher than rail fares. No significant change occurred in these rates during the year.

For the first time in ten years wage rates in the transit industry have shown a marked downward trend. During January, February and March of 1932 more reductions were reported than were made during the entire year of 1931 or in any other year of the past decade. This trend was of particular significance as wages represent about 55 per cent of the total operating expenses of the industry or nearly \$400,000,000 annually. Altogether approximately 250 transit companies with about 150,000 employees made wage cuts during the past two years. In most instances the reduction in wage rates was about 10 per cent.

Earnings of individual employees in the industry suffered by a reduction of working hours as well as by the reduction of wage rates. Decreases in revenue made it necessary for the operating companies to cut expenses

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by curtailment of service and maintenance. This meant that some men had to be dropped entirely off the pay roll. Wherever practicable, however, efforts were made to spread the available work among the greatest possible number of employees.

Figures compiled by the U. S. Department of Labor show a decrease of approximately 10 per cent between January, 1931 and April, 1932 in the number of persons employed by the electric railways. During this same period the total pay rolls of the industry were reduced about 18 per cent. Hence the earnings of the average individual employee who was retained on the pay roll declined approximately 9 per cent during that period. Further wage cuts since April have increased the total reduction in the earnings of the individual employee.

Wages of men employed in bus operation followed the same trend as the wages of those employed in car operation. In general the wages of shop men, track men and all other employees, including the clerical forces were reduced to the same ratio as those of the platform men. The salaries of executives were cut to the same extent or sometimes more severely than the wages of the employees.

VEHICLE IMPROVEMENTS

Resilient Wheels.—The investigations undertaken by the Electric Railway Presidents' Conference Committee in car design had not gone far before it was evident that the type of wheel determines to a very great extent what can be done in car construction. The present wheel, because of its solid and unyielding structure, passes up into the mechanisms above it all sorts of impacts and vibrations which are in large measure responsible for the sizes and weights now necessary in the truck structure and associated parts. It was realized that any radical changes would have to provide for the suppression of these impacts and vibrations as near as possible to the source, that is, it was essential to find or develop a satisfactory resilient wheel. The previous

unsatisfactory experience with most resilient wheels was fully recognized. Results of the research work, however, have led to the conclusion that it is entirely feasible to design a resilient street car wheel with impact values sufficiently low to permit radical improvements to be made in the truck.

Predicating the truck design on the assumption that a resilient wheel would be developed, about eight different types have been considered in detail. At least one of these appears to meet the various requirements, such as light weight, sufficient strength, lower and simple maintenance, quietness and good riding qualities. This contemplates the liberal use of rubber so arranged that all forces, driving and rolling, are cushioned.

Brakes, Lighting and Ventilation.

—Substantial improvements are expected in the power plant and its control which will permit faster schedules than at present. Results obtained in tests on braking performance have suggested opportunities for the improvement of this equipment to a notable extent. Experiments have been undertaken also to provide better lighting and ventilation. Altogether the work of the committee indicates the possibility of developing in the near future a vastly improved vehicle for electric railway operation.

Individual Progress.—In addition to the work being done under the auspices of the Electric Railway Presidents' Conference Committee, vehicle improvement has been carried on during the year on a large number of individual properties. This has included not only changes in the car bodies and the installation of more comfortable seats, but also rewinding of motors on a large scale to permit faster operation.

TROLLEY BUS EXPANSION

Continuing the wave of popularity which characterized its growth from 1929 to the end of 1931, the trolley bus again registered sizable increases during 1932 both in the number of vehicles and the mileage of routes placed in operation. Five additional cities adopted this type of vehicle, bringing the total number to twenty-

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five in the United States and its possessions. The cities where trolley bus operation was undertaken for the first time during 1932 include Kenosha, Wis., Fitchburg, Mass., Topeka, Kan., St. Joseph, Mo. and Indianapolis, Ind. Moreover, a number of cities which previously had trolley bus operation expanded service during the past year.

RAPID TRANSIT

The most notable event of the year in the rapid transit field was the

opening of the new Eighth Avenue Subway in New York City, in September. The lines now in operation cover 12 miles of route. Equipment consists of 800 multiple-unit cars. This is the first step in an extensive system of new subways which will serve four of the five boroughs of the city. The system has been so laid out that it can be run as an independent unit or coordinated with the existing companies in the event that a plan is worked out for unification of all the rapid transit lines.

THE MERCHANT MARINE

BY PETER BAIN

MARINE TRANSPORTATION CONSULTANT

MEASURE OF ACHIEVEMENT

No nation in this day can survive competition in foreign markets without owning and controlling a substantial share of its shipping services. Recognition of this truism is to be noted in the herculean effort of all maritime countries during the past decade to occupy and stabilize a favorable status on the Seas. The late Sen. Wesley L. Jones is credited with the inquiry: "Of what benefit is a balance of trade in our favor if we pay most of it out for freight?" In the last ten years, through the building up and development of American shipping services in the foreign carrying trade, it has become possible to transport in our own vessels 34 per cent of our commerce. This, compared with the meagre amount—10 per cent—carried prior to 1914 is of itself significant. In addition to the retention of freight and passenger revenues of \$300,000,000 annually these past ten years, there has been provided gainful employment for thousands of our citizens in the building, reconstruction and operation of ships, and been given to commerce and industry an impetus beneficial and lasting. The merchant fleet of the United States ranks next to that of Great Britain and, in the class of seagoing steam and motor vessels (excluding vessels

on the Great Lakes), of 2,000 tons and over, comprises nearly 1,600 individual ships of 9,000,000 gross tons. This compares with nearly 3,000 vessels of 17,860,000 gross tons of British ownership. Japan ranks next with 635 vessels of 3,200,000 tons, and is followed by Norway with 610 vessels of 3,150,000 tons, Germany with 561 of 3,275,000 tons, France with 527 of 2,876,000 tons, Italy with 512 of 2,795,000 tons, and Netherlands with 449 of 2,511,000 tons. As the result of establishment of American lines on essential trade routes, operations in the foreign trade of our country have expanded until now 600 vessels of nearly 3,500,000 tons are employed between 60 continental United States ports and 550 foreign and non-contiguous ports in services reaching all parts of the world. In 1914, we possessed 112 vessels of about 600,000 tons, of which but 17 were employed in overseas trade. Nearly 80 per cent of our merchant fleet is now owned by private American shipping companies; thus the day is within measurable distance when our Government will be out of the marine transportation business, as is the avowed intention, except in a regulatory capacity. Of the 2,546 vessels originally owned by the Shipping Board, all but 96 have been sold, scrapped, laid up, or otherwise

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disposed of. The 96 ships will be sold to private American interests for continued operation, while those laid up (116 on Nov. 1) will, with few exceptions, be sold for scrap. During the last fiscal year, 4,200 vessels of the world fleets participated in our foreign trade, making 47,000 entrances and clearances at 169 United States ports and 1,275 foreign ports, carrying 74,000,000 tons of cargo and 1,700,000 passengers. Since 1921, 350 domestic ports, 420 ports in non-contiguous United States territory, and 2,809 foreign ports—a total of 3,579 world ports—have participated in our water-borne commerce of more than 950,000,000 cargo tons, the constituent of which represented over 2,000 world products.

SHIPPING BOARD-MERCHANT FLEET CORPORATION

Administrative Changes.—Administrative personnel of the United States Shipping Board has been reduced from seven commissioners to three, regional representation being still maintained. Formerly the business of the Board was transacted through seven bureaus, each of which was in charge of a commissioner. Under the reorganization plan, Chairman O'Connor who represents the Atlantic seaboard, has charge of the Bureau of Marine Development (formerly the Bureau of Operations), also of the General Counsel who under direction of the chairman conducts all legal transactions in which the Board is concerned. Commissioner Cone, representing the Gulf seaboard, is in charge of the Bureau of Construction and Finance, and Commissioner Sandberg, representing the Pacific seaboard, is charged with the administration of the Bureau of Research together with that of Regulation and Traffic. The chairman is contact officer with the other executive departments of the Government, also the legislative and judicial departments. Public information relative to the activities of the Board is released through the office of the chairman.

Activities Summary.—Continued progress has been registered in reducing by sales and consolidations the

number of ship lines owned by the Government and in extending further aid to lines sold to private American citizens. The economic depression has been unsparing of shipping, and the American merchant marine, being a comparatively young enterprise, lacking the intrenched background of its principal competitors, has needed all the assistance that could properly be given. It became necessary for the Board to display a reasonable measure of leniency toward shipowners indebted to the Government. Thus, notes of purchasers of tonnage have been extended and effort made to procure like liberal treatment for borrowers from the Construction Loan Fund. As a result of the policy adopted, the fiscal year ended without failure or receivership among the lines in which the Government holds an equity. Reflected in the appropriations made annually by Congress is the extent to which active ship operation has been curtailed. For the fiscal year 1928 the appropriation was \$17,000,000; for 1929, \$13,400,000 for 1930, \$11,134,250; for 1931, \$5,950,000; and for 1932, \$1,970,000. No appropriation of new funds was made for the fiscal year 1933. Since July 1st, 1928, 2,037 employees have been dropped, the equivalent of \$3,063,309 of wages and salaries. Total operating loss of the Merchant Fleet Corporation, exclusive of the cost of operating vessels in the coal trade, was \$8,430,705.82. This compares with a loss of \$9,294,229.43 the year previous. What is known as the "lump sum" operating agreement became effective on all lines operated for Shipping Board account, because it was found to be no longer an experiment and because of its savings of a substantial sum annually. The number of lines operated for Shipping Board account was reduced from 13 to nine through sale, elimination, and consolidation. Number of managing operators was reduced from 12 to five. Thirty-seven vessels of 227,975 deadweight tons were sold for \$2,644,687.50, the number being made up of 28 cargo ships, 2 transports, 1 damaged concrete tanker, and 6 small craft. Ten vessels were transferred to other Govern-

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ment departments. Registration figures show that of 1,725 American ships of 1,000 gross tons or over, 1,366 aggregating 7,360,000 gross tons were privately owned, while 359, aggregating 2,114,000 gross tons, were still Government owned.

Construction Loans.—Since inception of the Construction Loan Fund, a total of \$152,717,247.41 has been advanced, of which, \$122,573,485.94 had been advanced up to and including the last fiscal year, the amount pertaining to the latter being \$50,817,809.29, comparing with \$28,704,786.65 in 1931. New construction contracts aggregated less than one-fourth of those placed the previous year as regards tonnage and indications were that all contracts for seagoing ships building in American shipyards would be completed early in 1933. Construction of seagoing tonnage during the past year was confined to yards on the eastern seaboard. Because of the widespread depression in the ship ping industry, orders for small craft, for the most part of non-seagoing type, were greatly reduced in number. From the beginning of 1930 through October last year, total gross tonnage completed in American yards amounted to 759,460 tons, of which, 78 new and rebuilt vessels with a gross tonnage of 602,320 tons were financed by loans from the Shipping Board.

Mail Aid.—All but ten of the vessels participated in ten-year Government mail contract subsidies of an aggregate value of \$289,523,755. To the ten ships not benefitting from mail contracts, and whose combined gross tonnage was 87,468 tons, the Shipping Board made loans amounting to \$11,009,000. For reconditioning 32 vessels of 205,034 total gross tons, \$11,084,613 was received from the Construction Loan Fund. Four ocean mail contracts were signed during 1932 and one cancelled by mutual consent, that of the United States Lines, Inc., on the New York-Southampton route. By the terms of the four contracts, construction of eight new vessels is required. Betterments and optional requirements covering 21 additional vessels were also provided. Of the new vessels, five are to be of 16

knots and three of 13 knots speed. The number of ocean mail contracts signed since passage of the Merchant Marine Act of 1928 stands at 44, the conditional requirements being for the construction of 69 new vessels (including 5 completely rebuilt), and betterments or substitutions affecting 57 vessels. Estimated cost of the new vessels is about \$300,000,000, and of the betterments \$22,300,000.

Recommendations for Legislation.

—The Shipping Board in the course of a series of 18 statute recommendations, among others, suggests that:—Legislation be enacted providing that ocean-mail contracts be not awarded to American lines operating foreign-flag ships in competition with American-flag ships. Higher rates of pay than now provided be authorized for mail-carrying vessels whose speed is in excess of 24 knots. Funds be appropriated to give effect to the Act of Congress of Feb. 23, 1925, providing for the creation of a naval reserve. Some form of Government aid be provided for American cargo ships not eligible for mail contracts, so as to lower the operating differential now handicapping these vessels in competition with those owned and operated by other nations. The limitation of \$185,000,000 on the amount of construction loans be removed, and that the Shipping Board be authorized to enter into contracts to make loans up to the ultimate amount of the fund—\$250,000,000—the Board, however, not to obligate itself to make actual disbursements in excess of the available cash balance at credit of the fund. Contributions to the Construction Loan Fund by the Shipping Board be permitted to continue until such sums, plus appropriations by Congress, reach the maximum of \$250,000,000. At an early date, legislation be enacted relative to adoption of the Hague Rules. The International Convention for Safety of Life at Sea be ratified by Congress. The Coastwise laws be amended to make it unlawful for foreign-flag ships to engage in so-called "voyages to nowhere," voyages originating at ports of the United States and terminating where embarkation took place without

touching at a foreign port. Legislation be enacted to provide additional regulatory authority over common carriers by water.

DOCUMENTED AMERICAN SHIPPING

At the end of the fiscal year 1932, the merchant marine of the United States—including all kinds of documented craft—comprised 25,156 vessels of 15,838,655 gross tons of which, 1,967 seagoing type of 9,937,717 gross tons were of 1,000 tons or over. This compares with 1,998 vessels of 9,922,771 gross tons at the end of the fiscal year 1931. Employed in foreign trade were 928 vessels of 5,276,979 gross tons and, in coastwise trade, 1,289 vessels of 4,856,643 gross tons. Since June 1, 1921, the coasting trade, exclusive of the Great Lakes, has increased 2,305,597 gross tons, while, during the same period, the total seagoing tonnage has decreased 2,982,659 gross tons. During the year, 722 vessels were built and documented. An analysis of seagoing tonnage shows that 1,490 steel and 365 wood vessels of 7,593,370 and 451,388 gross tons respectively, were privately owned. This compares with 1,468 steel and 400 wood vessels of 7,395,551 and 497,753 gross tons respectively, the previous year.

IDLE TONNAGE

Delay in the recovery of overseas trade has prompted the ocean shipping industry in this and other countries to initiate far-reaching economies, among which is the laying up of tonnage. Freights being earned continue at levels that in many cases fall below the cost of operation of most vessels still actively employed. Through the mail-aid features of the Merchant Marine Act of 1928, American ship lines continue to maintain adequate services on essential routes. The extreme degree of inactivity in the shipping industry is due primarily to the arrested natural expansion of international trade; thus, only an improved world economic condition will react advantageously on the existing situation. Unfortunately, at the year end, no indication was discernible of

even an early upturn in the freight market on which, be it said, the prosperity of all manner of shipping depends. Idle tonnage of our merchant marine on June 30 was greater by nearly 32 per cent than on the corresponding date of the year previous, and without question the percentage had become still more unfavorable when 1932 closed. In 1930 and 1931, the gross tonnages of vessels laid up throughout the world were estimated respectively as 5,000,000 and 10,500,000 tons. The laid up total for 1932 is placed at 15,000,000 tons, this out of a grand total of slightly under 70,000,000 gross tons of potential world shipping. During 1932, world shipping decreased to the extent of 400,000 tons, notwithstanding the great amount of new construction completed in recent years. The decrease is attributable to the circumstance that in the same period the average amount of obsolete tonnage broken up had been approximately 1,000,000 tons annually in addition to an average drop of 400,000 tons yearly through casualties.

PROBLEM OF SURPLUS AND OBSOLETE TONNAGE

With a surplus of world shipping tonnage generally acknowledged, various schemes looking to a solution of its disturbing effects have been devised and propounded. Concerted international action is sought but hard to procure. Early in November, the United States Shipping Board took further action on its obsolete ship disposal program by awarding a contract for the scrapping of 124 more vessels of 1,000,000 a. w. t. total. Again, on Dec. 28, it received bids for the disposal of another group of similar ships—40 in number of 335,000 a. w. t. total, the attaching condition being that all must be scrapped within 13 months from Jan. 15, 1933. Nations other than the United States are, however, more deeply concerned with a definite ship disposal plan in view of the fact that since the war we have led the world in scrapping ocean-going cargo carriers and, in the matter of new construction, have been surpassed by the individual totals of

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six other countries since the Merchant Marine Act of 1928. Again, although the United States is the foremost exporting nation and the principal contributor to international, long-voyage, passenger traffic, it actually has less shipping in the foreign trade per ton of exports or per head of population than has any other commercial maritime power. Proposals for concerted action to deal with the problem of surplus and obsolete tonnage have been made from time to time in recent years but nothing of a concrete nature developed until late 1932 when special steps were taken in certain countries to accelerate the breaking up of the older ships. Government proposals to this end have been placed before the United States, Germany, and Japan which, if put into effect, would release for breaking up within a definite period upward of 1,500,000 tons of old shipping. There is little incentive at the moment, however, for private shipowners, unaided, to resort to scrapping of their old tonnage because of a glutted market and the low price procurable for the resultant commodity—steel scrap. Alternatively, and as opposed to an international scrapping plan, it is suggested that a program of limitation of new construction be drawn up so that idle tonnage as far as possible be re-employed eventually and the competition of new tonnage be thereby avoided. Scrapping proposals, however good, can only be appreciably successful if adopted by all maritime countries and a guarantee given that a particular scheme would be strictly adhered to. In this respect, many difficulties are sure to be encountered.

It is claimed, and not without rea-

son, that our adoption of a scrapping plan along the lines indicated would go far towards restoring employment to a goodly number of our own people in addition to helping place the shipping industry as a whole on a sounder foundation. Again, our Western shipyards would probably be enabled to compete on an equality basis with those located in the East, being relieved of the handicap under which they labor on new construction contracts. On the other hand, the U. S. Shipping Board does not with unanimity contemplate or favor any proposal that would tend to interfere with the avowed policy of the American people to build up an adequate merchant marine. While it is natural that there should take place, during the depression, a slowing up of the country's marine development, it is obvious that the United States, still under-tonnaged in the matter of modern ships, cannot become a party to any international scrapping or laying up agreement without sacrificing some of the important gains already made. The attitude of our Shipping Board seems to be fully justified by the new construction statistics that follow: Only 9.6 per cent of the merchant fleet of the United States, listing vessels of 2,000 gross tons and over, has been built since Jan. 1, 1922, whereas the percentages of other nations are: Sweden, 56.3; Germany, 55.9; Great Britain, 50.9; Holland, 50.2; Denmark, 47.8; France, 37.1; Italy, 28.6; and Japan, 0.23. Again, but taking the Jones-White Act of May, 1928, as a base, while we have been building 56, Japan 67, Germany 79, and Great Britain 601; all being of 2,000 gross tons or over.

PROGRESS IN AERONAUTICS

BY LESLIE E. NEVILLE

MANAGING EDITOR, *Aviation*

GENERAL

Transportation Gain.—During 1932, the aviation industry put its house in order, and took steps to consoli-

date its retrenched position in order to be adequately prepared for future advances. As in the case of 1931, the bright spot seems to be in trans-

port. The growth of public acceptance of the airplane as a medium of transportation over the regular scheduled air services, as measured by the number of passengers carried in a given period, has been phenomenal. Even more remarkable has been the increase in air express poundage over last year. Air mail alone has suffered mainly because of the sharp advances in postage rates decreed in an attempt to balance the Federal budget. Progress that has been made in air transportation is doubly gratifying because it has been in the face of decreases in patronage in virtually every other form of transportation, and the excellent safety and reliability record of the scheduled air lines has done much to gain public confidence.

Operating Service.—The airplane operators are making rapid progress in the realization that they must furnish not only fast and reliable transportation in the air, but satisfactory and efficient ground connections to eliminate the disadvantage of distance between airports and population centers. Reliability has been increased, and many of the major air lines have completed a larger proportion of their schedules than ever before. Night flying, a practice of vital importance for successful competition with the railroads, has spread, and, whether it be from force of habit or efficiency, midnight and evening departures have found popular passenger acceptance beyond the expectation of the operators who inaugurated them. Twenty-five-hour passenger service has been inaugurated between New York and Los Angeles and 18-hour express service between these cities was to be instituted as the year came to a close.

Fares.—Undoubtedly the matter of fare is an important consideration in the progress of air lines. In most cases air fares are comparable to those of the first-class railroad trains, and round-trip rates, in general, are very close to railroad fares less extra fares. Railroads have countered in many cases by eliminating the extra fare. The air traveler in any case has the advantage of

faster transportation and meals included in transportation cost, two very important considerations.

Mail Contracts.—A number of airplanes continue to operate without benefit of mail contracts, but during the course of the year, one of the major independent systems was merged with one of the major mail contractors. Gradual and periodic reductions in air mail contract rates are forcing the operators to devote considerable attention to passenger traffic and express promotion, and operators are looking to fundamental economics to help in strengthening their organizations.

PRODUCTION

Decline in Aircraft Manufacture.

In sharp contrast to the advances in transport is the production side of the aeronautic industry. The manufacture of aircraft has declined appreciably during the year, and a large proportion of the output of the major production units of this country have been military rather than commercial in application. As the year draws to a close, there is a considerable export market in the process of development due in part to the militaristic inclinations of certain European countries and to the political unrest in South America. Until very late in the year there was no appreciable manufacture for replacement of transport equipment, but several large orders were in the process of fulfillment as the year came to a close. The greatest retrenchment has been made in the group of manufacturers producing airplanes for private or individual use. The chaotic conditions resulted from decline in prices, not only of the aircraft products themselves, but of the securities that might have to be liquidated in order to purchase such equipment which, for the most part, falls into the luxury class. Retrenchment, therefore, has been extremely severe, and only the strongest of the units specializing in this type of manufacture have survived. The era of over-production has instilled great caution in the minds of the remaining manufacturers, with

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the result that building on order is the prevalent practice.

TRANSPORT

Mileage and Passengers.—The growth of air transport is best shown by comparative figures for the first nine months of 1931 and 1932. In 1932, 36,695,629 airplane miles were flown as compared with 31,366,383 airplane miles for a similar period in 1931. 390,600 passengers were carried as compared with 348,507 in 1931, and 107,804,869 passenger miles were flown as compared with 89,928,195 for the same period in 1931.

Decline in Mail Carriage.—Air mail alone suffered a decline for two reasons. The figures for air mail show a decline, first because of the fact that in the past a single air-mail piece traveling over three lines would be reported three times, whereas in the recent policy it is only counted once. The increased postal rates have had some effect on the decrease in air mail poundage, but that effect has not been felt very definitely during the nine-month period as it did not become effective until June 1. The figures for 1932 are 5,967,404 lbs. as compared with 6,093,281 lbs. for 1931.

Gain in Express Carriage.—The air express picture is quite different, and shows a remarkable gain for this year. 1,019,973 lbs. of express were carried in the first nine months of 1932, as compared with 683,845 lbs. for the same period in 1931. On the whole, this presents a very encouraging picture, considering that general business volume during the period of 1932 was considerably lower than the 1931 period according to most indicators.

Airways and Airports.—At the present time there are some 19,500 miles of airway fully equipped for night flying by the Federal Government, in addition to an appreciable mileage of lighted airways provided by the State of Pennsylvania, and an individual transport operator. There are 691 partially or fully lighted airports in 319 lighted intermediate fields along the airways, and nearly 2,000 flashing or revolving

beacons in the Federal airway system.

There has been a slight increase in the number of commercial airports in 1932, the present figure being 619, while municipal airports have been reduced in number to 547. These do not include the landing fields of the Army, Navy and Department of Commerce. Because of reduced appropriations, the installation of landing field and lighting equipment on the airways has proceeded at a relatively slow pace.

WEATHER SERVICE

The number of weather stations operated by the U. S. Weather Bureau remains approximately the same, and radio telephone reports are broadcast at intervals, providing pilots with local conditions for the various areas. These stations are all interconnected by radio, telephone and telegraph, and in addition to these a number of privately operated stations have been installed by the air lines to provide two-way communication between stations and their planes. The Federal Airway Teletype System embraces 13,600 miles.

RADIO BEACON

The radio beacon has become a vital part of air-transport operation, and is provided on many of the main transport arteries. Blind flying has become an accomplished feat, and the problems of blind landing are rapidly being solved.

OPERATION

Although merger and consolidation have reduced the number of operating companies and eliminated some duplication of routes, more than 135,563 miles are being flown daily by approximately 32 mail and passenger operating companies over foreign and domestic routes covering a combined length of over approximately 50,000 miles. Aside from the transport field, there is a considerable group of airplanes used in aerial taxi, photography and miscellaneous services, including seeding and crop-testing.

AIR MARKING

The progress of airway and airport marking continues, and valuable work is being done by individuals, civic organizations, state aviation commissioners and the Department of Commerce. In at least one State important work was done through the cooperation of the Boy Scouts of America. Provision is also being made for floodlighting or obstruction lighting, and even for special beacons for night operation. Although there is still much to be done, increasing attention is being paid to the provision of adequate obstruction lights for towers and other menaces to aerial navigation.

LICENSES AND PERMITS

Department of Commerce figures show more than 18,000 valid pilot licenses, a slight increase over last year, and approximately 9,000 valid students permits, a decrease of more than 30 per cent from last year's figure. The number of valid airplane licenses in November was 7,369, while the number of airplane designs approved for manufacture was 494, and the number of approved engine designs 91.

RESEARCH

Aerodynamic Safety and Efficiency.

—Research in aerodynamics, which is largely in the hands of the National Advisory Committee for Aeronautics, has centered very largely around the major programs of the group being studied by the Committee. One of these programs, which is related in a general way to aerodynamic safety, constituted an exhaustive study of stability, controllability and spinning characteristics of airplanes. The laboratories are in a unique position to coordinate the results of their tests through the comparison of actual flight data with information gained through the new full-scale wind tunnel which houses a complete airplane, and the new towing basin, which is the largest seaplane channel in the world. During the past year the aerodynamic safety work has been devoted to a study of lateral control of airplane wings in

the neighborhood of the stalling point, and detailed tests of various devices for increasing wing lift, wing slots, flaps and floating ailerons have been examined in great detail, and the advantages and disadvantages of various types have been set forth in reports of the Committee. Another major program of the National Advisory Committee is associated with aerodynamic efficiency. This has included a highly detailed study of cowlings shapes for radial air-cooled engines to determine the most desirable form and position of engine cowlings for ideal conditions of airflow. Cooling properties of the various types of cowlings also have been given careful consideration. Remarkable conclusions have been reached during the past year and the progress to date was summarized in a recent report.

Blind Flying and Landing.—Efforts to increase the regularity of air transport service have centered largely on research problems associated with blind flying and blind landing. The part played by radio and the radio beacon is already well known. Artificial horizons have been employed, and at least one of the major airline systems has its planes equipped with automatic pilots of the type which depends for their operation upon the action of the artificial horizon. Important contributions to the art of blind flying have been made by the U. S. Army Air Corps and the several manufacturers of airplane instruments, and various devices for blind landing are being studied. A major factor in the introduction of the practice of blind flying is the necessity for a change in psychology on the part of the older pilots who are inclined to favor intuition rather than instruments. Under a new regulation in the Department of Commerce, transport pilots are required to pass specific tests in instrument flying in specially-constructed planes with hooded cock-pits, and an instrument to simulate the radio beacon in blind flying instruction has been designed and placed on the market by Lieutenant Carl Crane, of the Air Corps. Blind

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flying research has not been restricted to the Army and Navy, but has been carried out by the major transport lines, and through the work of Howard Stark, of Eastern Air Transport, a new type of instrument board embodying a superior or more highly desirable arrangement of instruments for transport plane service has been evolved.

Airplane Noise.—One of the major problems in transport has been that of noise reduction in airplane interiors. This problem is not simply one of silencing the exhaust, but of reducing propeller noises and engine vibrations throughout the structure of the airplane. Research has been conducted by manufacturers and transport operators, and some very satisfactory rubber shock absorbers have been incorporated or introduced at the point where the engine mounting is joined to the main fuselage framework. A study of insulating materials for cabin walls has been made, and the most recent material used to fill the air space between the double walls of a cabin is a mixture of down and fowl feathers. Double windows with air space between have also been used. Reduction in volume of noises attributable to propellers have been possible to some extent through reduction gearing to obtain lower tip speeds. One of the most recent developments has been a substitution of wood for metal propellers with the result that there was a considerable reduction in noise accompanied by a sacrifice in the high speed of the airplane that was so equipped. Development in controllable pitch propellers has been progressing gradually during the year and a third type has been added to those available commercially.

Aircraft Speeds.—Refinement of airplane design and increased power output of engines have combined to increase the performance of airplanes in both the commercial and military categories. An average transport cruising speed of close to 150 miles an hour has been attained, and high speeds in the neighborhood of 200 miles an hour will be the rule in

the near future. Although the Schneider Trophy record of 408.8 miles per hour continues to be the greatest speed attained by any airplane, the American landplane record has been pushed forward once more in the course of the National Air Races at Cleveland by the Gee Bee Supersportster. This machine, which has twice won the Thompson Trophy Race, attained a speed of 294 miles per hour in the straightaway dashes held in connection with the races.

AIRCRAFT TYPES

Monoplanes.—Monoplanes are used most extensively by the transport operators. While a good many of the transport ships are three-engined, the twin-engined type appears to be finding favor as the year draws to a close. A large number of twin-engined airplanes are to be built in 1933 for transport service. Single-engined machines are used extensively in private and business service, and no attempt to manufacture light multi-engined planes for three or four passengers has gained much impetus in this country. Transcontinental sleeping plane service has not been realized because there has been no definite demand. Judging from the popularity of the night schedules, passengers are sufficiently well satisfied with the reclining adjustable seats provided in most up-to-date transport planes. In all cases the trend seems to be toward smaller airplanes and more frequent service, with the capacity ranging between 10 and 15 passengers per plane. The 40-passenger Sikorsky flying boats operated by Pan-American Airways constitute an exceptional case for specialized service. The Ford plane which was to provide accommodations for sleeping has not yet been extensively test flown.

Biplanes.—Biplanes continue to be used on several of the transport lines, and some of the new crop of 1933 transports will be in this category. The undeniable advantage of greater wing area and therefore lower landing speed cannot be overlooked in cases where safety rather

than high speed is the primary consideration. Flying boats and amphibians are not finding the expected acceptance because of their additional weight and generally lower overall efficiency, as compared with landplanes in similar weight classes. The general purpose two- or three-place biplane is still manufactured to some extent, and represents a goodly portion of the total production of airplanes for non-transport use. There has been a definite trend toward side-by-side seating, and better touring accommodations characterize some of the newer open-cockpit machines.

The average airplane for private use is powered with an engine of 200 to 300 horsepower, and there is some demand for engines in the lower horsepower ranges. Vertical and inverted in-line engines have increased in the lower horsepower ranges, but the two-stroke-cycle types, designed essentially for light-plane use have had many reductions in their ranks because of the very limited demand for planes of the ultra-light type. Diesel engine design has progressed, and a new power plant of this type has been added to the ranks. Fuels and lubricants of superior quality have been developed during the course of the year, and the hydrogenation process of oil refining is being used commercially.

DESIGN PROGRESS

Wing Structure.—Metal continues to gain over wood in airplane construction, but wood is still frequently used for wing structure. Although fabric is used extensively for covering, sheet metal is becoming more and more frequently employed in such a way as to contribute to the rigidity of the structure. The trend toward the all-metal monocoque fuselage structure, in which the metal skin carries a certain proportion of the stresses, has been steady, and will probably bear fruit in a number of new airplanes in 1933. An airplane having a new type of metal monocoque fuselage structure, embodying formed sheet duralumin sec-

tions, specially heat treated, was test flown by A. K. Longren, late in 1932.

Stainless steel is beginning to appear on the horizon as an important structural material, and many of the difficulties associated with its working have been solved. Notable among these is the development of the electric spot-welding process. Oxy-acetylene welding is used for the most part in steel construction and riveting for aluminum-alloy work.

AERODYNAMIC REFINEMENT

Retractable landing gears have contributed much to the increases in high speed of airplanes in commercial service, and one of the major operators is building a large fleet of airplanes with this type of equipment. The cantilever gear has come into more general use also because of its cleanness and low resistance. Useful load is being increased in proportion to weight empty in the newer airplane designs, which has the effect of increasing load-carrying capacity.

AUTOGIROS

One of the most active branches of aeronautical research has been the development of the autogiro type of aircraft. This work has been proceeding at a rapid rate through the pioneering efforts of Harold Pitcairn, based on the original patent of the Spaniard, Juan de la Cierva. While commercial production has been carried on by the parent company and one licensee, an entirely new model has been developed, having a completely closed cabin for passengers. Extensive test flights of the Wilford gyroplane which embodies feathering rather than articulated vanes, have been made during the year. Helicopter developments seem to have been at a standstill.

DIRIGIBLES

Airship progress has been slow but work is progressing at a rapid rate on the *Dirigible Macon*, sister ship of the *Akron*, which was completed last year. These ships are the largest of their type in the world and

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involve much advanced lighter-than-air design.

ENGINE DEVELOPMENT

Progress.—Although there have been few new designs in the engine field, very definite progress has been made in the logical development of present types. Conditions in the industry have been such that development in general is along the lines that would be applicable to transport or military service, which is a logical outcome of the reduction in the scope and market for private airplanes.

Air-cooled Engines.—The air-cooled engine continues to be the preferred power plant in commercial service, although a limited number of water-cooled engines are being used in air transport service. Military airplanes, however, are still extensively equipped with liquid-cooled engines, and the application of high-temperature liquid cooling is becoming more general in water-cooled military engines. Development of the radial engine has been progressing at a reasonable rate with increased power output, lower weight, and smaller frontal area the goals of the designers. In the course of the year one 14-cylinder radial air-cooled engine with a double row of cylinders, each cylinder directly behind the other, was completed for the Navy, and other power plants of this type are in the development stage. Through the use of these designs it has been possible to obtain lower specific weight and reduced frontal area.

Centrifugal superchargers of the built-in type have been improved, and, in one of the engines brought out in 1932, the supercharger propeller diameter was made consider-

ably larger than usual in order to obtain the peripheral speed of the previous model with a lower rotational speed.

RADIATORS AND PROPELLERS

With the trend definitely away from the water-cooled engine in commercial service, relatively little attention has been given to the problems of radiator location and disposition. Progress has been made, however, in this direction in the development of recent military designs. Although aluminum alloy propellers are still extensively used in all types of service, gradual but positive progress has been made by the sponsors of steel propellers. The combination propeller-muffler in which the exhaust is emitted through incisions in a hollow steel blade is still in the experimental stage. At the present time there are available three types of variable pitch propellers, in all of which the pitch can be changed while the airplane is in flight. Through the efforts of the National Advisory Committee for Aeronautics in its program on cowling research a number of excellent cowling combinations for radial air-cooled engines have been developed by various manufacturers.

ACCESSORIES

The use of mechanical and hydraulic brakes is almost universal, and development has been generally along the lines of brake control devices. Low and medium pressure tires are in extensive use, and usually are employed in combination with suitable shock absorber mechanisms. Wheel fairings have been modified in mechanical detail in such a way that they are more easily removable for maintenance purposes.

THE RADIO

By W. R. G. BAKER

VICE PRESIDENT, R. C. A. VICTOR COMPANY

MECHANICAL AND INDUSTRIAL DEVELOPMENT

Service Expansion.—Radio continued its rapid development and ex-

pansion during 1932, finding new fields of service and extension of facilities in those fields already established. Technical investigation by

physicists, engineers, and others resulted in further knowledge of the electron and its manifold uses in radio, the propagation of electromagnetic waves, acoustics and the recording and reproduction of sound. Although the industry, like most others, suffered from the economic readjustment, there was distinct progress made both technically and commercially.

Investment.—A survey made by R. G. Dun and Company (published by *Radio Engineering*) places the total investment in the radio industry at \$1,800,000,000. Of this amount \$150,000,000 represents the investment of radio manufacturers; \$25,000,000 the investment of broadcasting stations; \$1,600,000,000 in listeners' sets; and \$25,000,000 the investment in commercial radio stations. In addition, there is an investment of approximately \$225,000,000 in police radio transmitters, airways transmitters, coast guard stations, Government (army and navy) stations, amateur sending stations, and the many laboratory and raw product sources. In less than fifteen years there has grown up an industry which contributes more than \$500,000,000 annually to the national wealth and pays out nearly \$350,000,000 for operating expenses. The many uses of radio in the United States are indicated by the following classes of transmitters licensed by the Federal Radio Commission:

Aeronautical	170
Aircraft	293
Amateur	22,739
Broadcasting	612
Coastal	143
Experimental	160
Geophysics	113
Marine relay	36
Point-to-point	297
Police and fire	67
Power companies ..	22
Relay broadcasting ..	13
Ships	2,213
Television	21
Miscellaneous	25
Total	26,924

RESEARCH

Cost Problem.—Intensive research in the fields of radio and sound, which has been largely responsible for the rapid development of the industry in the past, was continued in 1932 with no less diligence. Greater effort was made to find ways of reducing the cost and improving the performance of the product in order to meet the general condition of decreased purchasing power of the consumer and to stimulate the replacement of obsolete equipment.

Short Wave Experiments.—Much study was devoted to the generation, propagation, and reception of very short waves with a view toward their utilization for television transmission, aircraft communication, and other purposes. Numerous experiments were conducted with so-called "centimeter waves" or wave-lengths of less than a meter. The problem of developing suitable oscillators, amplifiers, frequency controls, and radiating systems for these extra high frequencies received considerable attention from engineers.

Television constituted an important field of endeavor in the research laboratories. Effort was concentrated toward obtaining improved detail and greater light intensity in the received image as well as toward discovering a suitable system of transmission which does not require so wide a frequency band as, at present, seems to be necessary. Methods of projecting on a screen an image of the desired size and brilliance are being sought along with means for direct pick-up of scenes for transmission.

Sound Reproduction.—In the field of sound reproduction research aimed at extending the frequency range of film and disc records, amplifiers, and loudspeakers so as to reproduce the very low bass frequencies and the higher harmonic frequencies which contribute greatly to the naturalness of speech or music. These harmonics fall in the region between 5,000 and 15,000 cycles per second and their faithful reproduction introduces a number of problems. Mechanical parts, vibrating at these frequencies, must have extremely small moments

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of inertia, and the associated electrical circuits must also be carefully designed. Some experimental work has been devoted to the use of Rochelle salt crystals as the reproducing elements for microphones and loudspeakers. If such a crystal is subjected to a mechanical stress a voltage will exist between its faces, the voltage reversing when the stress is reversed. Conversely, if a voltage is applied between two faces of the crystal a mechanical stress will be set up tending to distort it. These crystals are best suited for use in units where low cost and simplicity are the chief objectives.

MANUFACTURE AND SALES

Value and Prices.—Radio production continued with a reduced output throughout the year and prices reached even lower levels than during the preceding year. Reduced manufacturing costs were largely responsible for these low prices although the quality and performance of the apparatus were improved. Never before were such values offered the consumer. The tabulation (next column) indicates the trend of the average prices of radio broadcast receivers from 1922 to 1932, inclusive:

1922	\$50
1923	60
1924	66
1925	82
1926	114
1927	125
1928	118
1929	133
1930	87
1931	62
1932	60 (estimated)

Cut in Surplus Stocks.—Distress merchandise was for the most part disposed of and wholesalers' and retailers' stocks were kept at a minimum. Manufacturers matched production closely with sales, and as a result there was little evidence of surplus stocks such as in former years.

Diversification.—There was a further tendency among manufacturers to diversify their products in order to obtain a more nearly uniform volume of production. A number entered the refrigeration field while others went into the manufacture of motion picture cameras and projectors, laboratory equipment, microphones, and similar apparatus. In the same way, retailers combined other lines of products with radio equipment.

RETAIL SALES OF RADIO PRODUCTS

(Compiled by *Radio Retailing*)

PRODUCT	1928	1929	1930	1931
Radio Sets, all Types and Combinations:				
Number	3,281,000	4,438,000	3,827,800	3,420,000
Value	\$388,000,000	\$592,068,000	\$332,198,000	\$212,040,000
Tubes:				
Number	50,200,000	69,000,000	52,000,000	53,500,000
Value	\$110,250,000	\$172,500,000	\$119,600,000	\$69,550,000
Speakers Only:				
Number	2,460,000	800,000	.....	.....
Value	\$66,400,000	\$16,000,000	\$3,500,000	\$375,000
A-B-C (Dry) Batteries:				
Value	\$50,400,000	\$30,530,000	\$21,514,000	\$13,100,000
A-B Power Units, Storage Batteries and Chargers:				
Value	\$17,500,000	\$14,350,000	\$6,920,000	\$4,000,000
Other Accessories:*				
Value	\$46,000,000	\$9,600,000	\$6,700,000	\$4,205,000
Parts Sold to Consumer:				
Value	\$12,000,000	\$7,500,000	\$6,000,000 (estimated)	\$6,000,000 (estimated)
TOTAL VALUES:				
Sets and Combinations	\$388,000,000	\$592,068,000	\$336,717,500	\$212,040,000
Parts	12,000,000	7,500,000	6,000,000	6,000,000
Accessories	290,550,000	242,980,000	158,234,000	91,230,000
GRAND TOTALS FOR YEAR	\$690,550,000	\$842,548,000	\$500,951,500	\$309,270,000

* Includes aerial equipment, meters, pickups, turntables, headsets, furniture, etc.

THE RADIO

Receivers.—Automobile radio receivers numbered 34,000 in 1930, and 108,000 in 1931. Nearly half the receivers sold in 1931 represented replacements, and it is probable that the proportion was nearly the same in 1932. It was estimated that at the end of June of the past year there were 16,800,000 broadcast receivers in use in the United States, representing a gain of nearly 5,000,000 in the last two years.

Retail Outlets.—The character of radio retail outlets has undergone considerable change and in this connection it is interesting to note the variety of outlets, and the percentage of the radio business they receive, as disclosed by the previously-mentioned R. G. Dun survey:

Type of Dealer	Per Cent
Exclusive Radio.....	30
Music	12
Furniture	11
Automotive	9
Department	8
Power companies	6
Electrical	6
Hardware	5
Contractors	3
Drug	1
Grocery	1
Jewelry	1
Miscellaneous	7
Total	100

BROADCASTING

Utilization.—The radio broadcasting industry continued its growth and increased the value of its service during 1932. Advertisers made further use of this medium for reaching the public and the quality of programs set new high standards. The presidential nominating conventions and subsequent campaigns took a considerable portion of the broadcasters' time and the active interest of the public in the political issues involved was reflected in the response to these broadcasts.

Service Area and Stations.—A survey made by the Federal Radio Commission reveals that there are 607 broadcasting stations located geographically so as to insure consistent

reception at night over about 46 per cent (56.2 per cent daytime) of the total area of the continental United States and by about 89.6 per cent (94 per cent daytime) of its total population. The entire area and total population of the country receive intermittent service at night. The distribution of broadcasting stations among the states is as follows:

New York	52
California	43
Pennsylvania	40
Illinois	36
Texas	34
Iowa	26
Washington	22
Ohio	20
Michigan	19
Missouri	19
Indiana	16
Wisconsin	16
New Jersey	15
Massachusetts	14
Tennessee	13
Colorado	13
Oregon	13
Virginia	12
Oklahoma	12
Nebraska	11
Georgia	10
Louisiana	10
Arkansas	9
Florida	9
Minnesota	9
South Dakota	9
Alabama	8
Mississippi	7
North Carolina	7
Arizona	7
North Dakota	6
Idaho	6
Montana	6
Maine	5
Rhode Island	5
Vermont	5
Kentucky	5
West Virginia	5
Maryland	5
Connecticut	4
South Carolina	3
New Mexico	3
Utah	3
Dist. of Columbia.....	3
Delaware	2
New Hampshire	2
Alaska	2

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Hawaii	2
Nevada	2
Puerto Rico	1
Wyoming	1
Total	607

Government System Opposed.—A report submitted by the Federal Radio Commission to the United States Senate June 8 disclosed that a government-owned broadcasting system in this country would be too costly a project to be feasible. The cost of facilities alone would be between \$100,000,000 and \$175,000,000 not including operating expenses and the cost of talent.

TRANSMITTERS

Power Rating and Frequencies.—Increased power was granted by the Federal Radio Commission to several broadcasting transmitters throughout the country. Eight additional stations were licensed to use 50 kilowatts making a total of 19 with that power rating. Synchronization on the same wave-lengths of certain transmitters was continued with satisfactory results. Effective June 22, all transmitters were required to maintain their assigned frequencies within limits of plus or minus 50 cycles. Maintaining this close regulation requires very accurate control devices and frequent monitoring.

New microphones were developed which permitted higher quality transmission. In the broadcasting of the Democratic and Republican conventions in Chicago the parabolic microphone was used with marked success. By focusing this instrument on the speaker the sound of his voice could be picked up very well even though he was stationed several hundred feet away. The lapel microphone, secured to the lapel of the speaker's coat, also was used successfully in these broadcasts. A number of broadcasts of sports events were accomplished with the aid of portable short-wave transmitters carried like a knapsack by the announcer. The short-wave transmission was received at a stationary receiver and relayed to the broadcasting station over land wires.

RECEIVERS

Types and Models.—The majority of 1932 broadcast receivers were of the superheterodyne type utilizing from four to fourteen tubes in the circuit. The console models appeared to gain favor over the "midget" models although the small receivers continued to be popular. Two, and even three, loudspeakers were used in some of the larger models. Radiophonograph combinations were sold in considerable number. The majority were equipped with two-speed turntables for the long-playing and regular disc records, while some were equipped with automatic record-changing mechanisms and facilities for home recording.

Circuit Refinements.—The principal developments in broadcast receivers were in the nature of circuit refinements giving improved performance and ease of operation. Nearly all except the very low-priced instruments were equipped with tone control and automatic volume control; the former permits the listener to vary the quality of the sound and the latter tends to maintain the receiver output at a substantially constant level with changes in the signal input. The Class B type amplifier, giving high output with relatively low power consumption was introduced in alternating current operated receivers. This increased power output made possible greater volume and improved fidelity of reproduction. Another feature was automatic audio compensation, designed to correct for a characteristic of the human ear that causes the audibility of the high and low frequencies to decrease more rapidly than that of the middle register as the volume of sound is decreased. Several models were equipped for reception of short-waves.

Automobile Receivers.—The popularity of automobile radio receivers continued to increase and automobile manufacturers equipped certain of their models for radio reception. A number of models of portable receivers also were placed on the market.

TUBES

Several new type tubes appeared on the market during the year. Self-biasing tubes were developed for use in Class B amplifiers for alternating current receivers to overcome certain difficulties in obtaining suitable bias voltage. The pentode, or five-element tube, was modified to meet the present day requirements for radio-frequency and intermediate-frequency amplifiers. Tubes combining a triode and two diodes in a single envelope and coplanar grid tubes were used to perform the functions of detection, amplification, automatic volume control, and noise suppression. Mercury vapor rectifier tubes were developed especially for receivers using the new Class B amplifiers. All the new tubes were of smaller size than their predecessors, thus permitting more compact receiver chassis.

MARINE RADIO

New radio installations on ships in many cases included both short-wave and intermediate-wave equipment. Direction finders, by means of which vessels are able to determine their exact positions, found increased use. Rugged water-proof radio equipment was developed for lifeboats, permitting communication over more than 100 miles on 600 meters and much greater distances on 36 meters. In the process of development also were automatic alarm devices for receiving distress signals when an operator is not in attendance.

AIRCRAFT RADIO

The Department of Commerce directive radio beam stations, spaced at intervals of approximately 150 miles over the mail-passenger routes, rendered a valuable service to pilots in night flying and flying in bad weather. The transmission is accomplished by means of three beams, each with its own characteristic signal, enabling the pilot to know when he is on the course, to the left of the course, or to the right of the course.

Where such service is not available, direction finders have been used to advantage. If the device is mounted on the aircraft the pilot can

determine his bearings by receiving signals from two or more known ground stations. Where the pilot has available only a transmitter and receiver, the location of the craft is determined at the ground stations and the information is then sent to the pilot.

POLICE RADIO

During the past three years approximately 70 police radio services have been installed by as many cities and states and a survey made by the Federal Radio Commission reveals that police radio is serving a quarter of the population of the United States. Police cars equipped with receiving sets totaled 2,225. The largest installation is that of New York City which cost about \$100,000 but has been responsible for the recovery of property worth many times that amount.

AMATEUR RADIO

The number of licensed amateur stations increased to approximately 23,000. The active group of experimenters operating these stations continued to render a valuable service in the handling of messages and the improvement of international good-will. During the Olympic Games held in Los Angeles a station was set up which maintained contact between the foreign athletes and their homes. Considerable experimental work was done with transmission in the 56-60 megacycle band of frequencies.

ALLIED PRODUCTS

Sound Motion Pictures.—In the field of sound motion pictures much progress was made toward higher quality recording and reproduction. Although there were no revolutionary changes in methods or equipment, improvements were made in the individual units of the equipment. The introduction of the velocity type and dynamic type microphones, together with improved amplifiers, recorders, and loudspeakers have extended the frequency range of the reproduced sound. Statistics published by *Electronics* show that there are 20,000 theatres in the United States, 13,500,

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or 67.5%, of which are equipped for sound reproduction. The total number in other countries is approximately 40,000 with 39.5% wired for sound.

Electronic Musical Instruments.—Development continued on various types of musical instruments in which the sound is produced by electronic means. Certain types of these are equipped with key-boards similar to that of a piano, while others were

constructed with fret-boards on the order of stringed instruments.

Industrial Electron Tubes.—Applications of electron tubes in industry showed a steady increase. Further uses were found for the photo-cell in counting, sorting, measuring, control of industrial processes, etc. Thyatron tubes also found more extensive use in various types of control circuits.

STATISTICS OF MANUFACTURES

By LEVERNE BEALES

CHIEF STATISTICIAN, DIVISION OF MANUFACTURES, U. S. BUREAU OF
THE CENSUS

BIENNIAL CENSUS

The biennial census for 1931, when completed, will constitute the first comprehensive assemblage of statistics covering the entire field of manufactures to be undertaken since the census for the peak year 1929. Cross-section reports of industry, presented generally in the form of indexes covering periods ranging from a week to a year and made by various governmental and private agencies, for the most part trace in a reliable manner current industrial trends in prices, production volume, employment and payroll levels, etc. It remains for the censuses of manufactures, however, to assemble and present comprehensive and detailed figures covering the productive activities of all manufacturing enterprises.

For at least three reasons the census for 1931 is considerably more restricted in scope than was that for 1929. The earlier census belonged to the decennial as well as to the biennial series, and hence followed the plan, in effect at former decennial censuses, of presenting reports of industry in more detail than is given at two-year intervals. Furthermore, drastic economies in governmental

expenditures necessitated a reduction in the number of inquiries carried on the schedules for 1931. Not the least important reason for the curtailment, however, was the desire to minimize industry's burden in making returns at a time when factory-office forces were reduced and energies were absorbed in unusual problems of factory management.

PRELIMINARY SUMMARY FIGURES

At the time this article is being written (Dec. 1, 1932) preliminary summary statistics have been issued in the form of press releases covering 239 of the 317 industries recognized by the manufactures-census classification. It is expected that the principal statistics for all the industries will have been made public by the close of the year. The figures bring out in a striking manner the effect of the trying times through which industry was passing during the two years following the high-g geared operations of the period from 1922 to 1929. A summary of the statistics for those industries for which reports had been released up to Dec. 1, 1932, gives the percentages of decline in the industrial levels during the period from 1929 to 1931.

STATISTICS OF MANUFACTURES

SUMMARY FOR 239 INDUSTRIES:

	1931	1929	Per cent of decrease
Number of establishments.....	70,987	82,889	—14.4
Wage earners (average for the year)*..	2,998,107	4,157,102	—27.9
Wages.....	\$3,385,649,677	\$5,706,168,637	—40.7
Cost of materials, containers for products, fuel, and purchased electric energy.....	\$11,293,968,417	\$20,259,852,406	—44.3
Value of products.....	\$21,755,632,639	\$37,127,526,926	—41.4
Value added by manufacture †.....	\$10,461,664,222	\$16,867,674,520	—38.0

* Does not include salaried officers and employees. The average number of wage earners is based on the numbers reported for the several months of the year. This average exceeds somewhat the number that would have been required for the work performed if all had been continuously employed throughout the year, because of the fact that manufacturers report the number employed on or about the 15th day of each month, as shown by the payrolls, usually taking no account of the possibility that some or all of the wage earners may have been on part time or for some other reason may not actually have worked the entire month. Thus it becomes necessary to give equal weight to full-time and part-time wage earners in calculating the average, and therefore the average overstates somewhat the amount of full-time employment. For this reason the quotient obtained by dividing the amount of wages by the average number of wage earners cannot be accepted as representing the average wage received by full-time wage earners.

† Value of products less cost of materials, containers for products, fuel, and purchased electric energy.

NUMBER OF MANUFACTURING ESTABLISHMENTS

The difference between the numbers of establishments reported for 1929 and for 1931 should not be accepted as representing the exact or even the approximate number of those which, although in operation in 1929, were dismantled or idle in 1931. Since the figures cover only those establishments whose products during the census year were valued at \$5,000 or more, and since thousands of small plants which were active in both years exceeded the \$5,000 limit in 1929 but fell below it in 1931, it follows that the extent of the decline in the actual number of plants in operation was considerably less than that indicated by the above table. Furthermore, since the census canvass for 1931 was, in the main, made by mail, it is quite certain that the coverage of industry was not equal to that at the biennial-decennial census for 1929, which was taken with the assistance of a large field force. (This lack of completeness of the canvass, however, had no serious effect on the accuracy of the figures, except for the single item of number of establishments, since only the small and unimportant ones—and only a part of these—were missed.) It should be borne in mind also that the difference between the numbers of establishments reporting for 1931 and for

1929 represents net rather than gross change. To illustrate: Let it be assumed that industry A reported 1,000 establishments for 1929 and only 950 for 1931. The difference, 50, may indicate simply that 50 establishments were closed down between 1929 and 1931, or it may be that 10 new plants were launched in the biennial period and that 60 plants were idle in 1931. The census reports do not disclose the nature of gains and losses in this detailed manner. They merely give figures for those establishments which were in operation at some time within the given year.

WAGE-EARNERS

Footnote 1 on the foregoing table points out the necessity for caution in interpreting the significance of the wage-earner figures at this particular time. The prevalence of staggered-employment programs in some communities, together with reduced and fluctuating hours of employment in 1931 in many establishments, affects the comparableness of the wage-earner figures for 1931 with those for prior years, in which conditions were more nearly normal. In other words, although the figures may be fairly comparable as representing the mere numbers of wage-earners who had some amount of employment in the respective years, they undoubtedly understate the falling off

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in the aggregate amount of work done.

WAGES PAID

Comparisons of wages are much safer. About figures for the wage budget there can be little uncertainty. (One might, of course, like to know how many different wage-earners shared in the payments and in what amounts, but census data do not disclose those facts accurately.) The equivalence of these figures in "real" wages, that is, in terms of their buying power at a given time, can be determined with a fair degree of accuracy from published indexes. According to an index constructed by the National Industrial Conference Board, the cost of living declined about 13 per cent from 1929 to 1931. The declines of 40.7 per cent and 41.4 per cent, respectively, in the wage budget and in the gross value of products for 1931 as compared with 1929 indicate that the ratio between the former and the latter was maintained with practically no change.

COST OF MATERIALS

The combined cost of materials, containers for products, fuel, and purchased electric energy dropped 44.3 per cent below that for 1929—somewhat more than the declines in wages and in value of products. The per cent which the combined materials cost has formed of the gross value of products in the several census years from 1899 to 1931 is shown below. (The Census of Manufactures was taken at five-year intervals from 1899 to 1919.)

Census year	Per cent
1931	* 51.9
1929	54.7
1927	56.0
1925	57.3
1923	57.3
1921	58.0
1919	60.0
1914	59.5
1909	59.0
1904	57.7
1899	57.6

*Based on preliminary data for 239 industries.

It will be seen that from 1899 to 1919 the cost of materials formed a generally increasing proportion of the total value of products and that

from 1921 to 1931 the opposite trend prevailed. It is probable that the explanation, in the case of the earlier period, lies, at least in part, in the fact that prices of raw materials increased more than those of manufactured goods. For the post-war period, however, general price trends do not afford an explanation of the relative decline in cost of materials, since prices of raw materials fell about 46 per cent from 1919 to 1929, while those of manufactured goods decreased 52 per cent.¹ The reason in this case probably is to be found mainly in increased economy and efficiency in the selection, care, and utilization of materials. Price indexes (constructed by agencies other than the Bureau of the Census) indicate that during the period 1929-1931 wholesale prices of raw materials declined much more than those of finished products. Price trends were, therefore, decidedly to the advantage of the manufacturer as against that of the raw-material producer, although there is little doubt that the disparity in the two sets of prices, by diminishing the power of the raw-material producer to buy manufactured goods directly, contracted the size of the manufacturer's market.

New light has been shed on the place of materials in manufactures by researches undertaken by the Bureau of the Census in the past year.² In the publications of the Census Bureau, attention has been called repeatedly to the duplication in the reported cost of materials brought about by the use of the products of some establishments as materials by others. This pyramiding of the cost of materials inflates by the amount of that duplication the reported aggregates of the "cost of materials" and the "value of products" and makes of them merely measures of the aggregates of industrial transactions in factory materials and prod-

¹Dr. Frederick C. Mills has elucidated these price movements in considerable detail in his recent book, *Economic Tendencies in the United States*.

²The results will be published as a special study under the title *Consumption of Materials in Manufactures: 1929*.

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ucts, rather than measures of the cost of raw materials consumed and the value of the finished products of industry in condition for use by the ultimate consumer. This latter amount has been termed "net value" to distinguish it from the gross figure carried in census reports as the value of products. While the estimate recently completed covered operations in 1929, there is little reason to believe that the proportions for the various values and costs would not apply roughly in manufacturing operations for 1931. The figures for 1929 indicate that 33 per cent of the gross value represents duplication; or, expressed conversely, net value is roughly two-thirds of the gross figure. To arrive at the net value of products, it was necessary to break down the cost of materials, etc., into its constituent parts. The several shares, expressed as percentages of the total cost, are as follows:

Total cost.....	100.0
Materials and containers.....	95.2
Raw materials.....	32.9
Semi-manufactures.....	62.3
Fuel and purchased energy.....	4.8
Unmanufactured fuel.....	2.2
Manufactured fuel.....	1.4
Purchased energy.....	1.2

VALUE OF PRODUCTS

The gross factory value of products for the 239 industries (preliminary figures) decreased 41.4 per cent in 1931 from the level of 1929. No estimate of the decline in physical volume of production has been made from census data, although the index of production for manufacturing industries, constructed by the Federal Reserve Board, shows a decline of almost 33 per cent, less than might have been expected in view of the extent to which the decline in unit prices was a factor in the decrease of 41.4 per cent in gross value of products.

DIVISION XIII

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

MANUFACTURERS

AMERICAN ASSN. OF CREAMERY BUTTER MANUFACTURERS, 208 S. LaSalle Street, Chicago, Ill.
 AMERICAN ASSN. OF OIL BURNER MANUFACTURERS, 350 Madison Ave., New York City.
 AMERICAN ASSN. OF WOOLEN AND WORSTED MANUFACTURERS, 45 E. 17th Street, New York City.
 AMERICAN AUTOMOBILE ASSN., Pennsylvania Ave. at 17th Street, Washington, D. C.
 AMERICAN BOTTLEERS OF CARBONATED BEVERAGES, 726 Bond Bldg., Washington, D. C.
 AMERICAN BRUSH MANUFACTURERS ASSN., 505 Arch St., Philadelphia, Pa.
 AMERICAN HARDWARE MANUFACTURERS ASSN., 342 Madison Ave., New York City.

AMERICAN INSTITUTE OF STEEL CONSTRUCTION, 350 Madison Ave., New York City.
 AMERICAN IRON AND STEEL INSTITUTE, 75 West Street, New York City.
 AMERICAN IRON, STEEL AND HEAVY HARDWARE ASSN., 47 W. 34th St., New York City.
 AMERICAN PAPER AND PULP ASSN., 18 E. 41st Street, New York City.
 AMERICAN PETROLEUM INSTITUTE, 250 Park Avenue, New York City.
 AMERICAN ZINC INSTITUTE, INC., 27 Cedar Street, New York City.
 ELECTRICAL MANUFACTURERS COUNCIL, 30 E. 42nd St., New York City.
 MELLON INSTITUTE OF INDUSTRIAL RESEARCH, University of Pittsburgh, Pittsburgh, Penna.
 NATIONAL AMERICAN WHOLESALE LUMBER ASSN., 41 E. 42nd Street, New York City.

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NATIONAL ASSN. OF COTTON MANUFACTURERS, 80 Federal Street, Boston, Mass.

NATIONAL ASSN. OF ELECTRICAL CONTRACTORS AND DEALERS, 15 W. 37th Street, New York City.

NATIONAL ASSN. OF ICE INDUSTRIES, 163 W. Washington Street, Chicago, Ill.

NATIONAL ASSN. OF MANUFACTURERS OF THE U. S. OF AMERICA, 11 W. 42nd St., New York City.

NATIONAL ASSN. OF WOOL MANUFACTURERS, 80 Federal Street, Boston, Mass.

NATIONAL AUTOMOBILE CHAMBER OF COMMERCE, 366 Madison Ave., New York City.

NATIONAL ELECTRIC LIGHT ASSN., 420 Lexington Ave., New York City.

NATIONAL ELECTRICAL MANUFACTURERS ASSN., 420 Lexington Ave., New York City.

NATIONAL LUMBER MANUFACTURERS ASSN., Transportation Building, Washington, D. C.

NATIONAL MACHINE TOOL BUILDERS ASSN., 630 Vine St., Cincinnati, O.

NATIONAL METAL TRADES ASSN., 50 Broadway, New York City.

NATIONAL PAINT OIL AND VARNISH ASSN., 18 E. 41st St., New York City.

RUBBER ASSN. OF AMERICA, INC., 250 W. 57th St., New York City.

SILK ASSN. OF AMERICA, 468 Fourth Ave., New York City.

UNITED STATES BREWERS ASSN., 55 W. 42nd St., New York City.

UNITED TYPOTHETAE OF AMERICA, Tower Building, 14th and K Sts., N. W., Washington, D. C.

TRANSPORTATION AND COMMUNICATION

AERIAL LEAGUE OF AMERICA, 280 Madison Ave., New York City.

AMERICAN ASSN. OF RAILROAD SUPERINTENDENTS, 111 Union Station, St. Louis, Mo.

AMERICAN ELECTRIC RAILWAY ASSN., 292 Madison Ave., New York City.

AMERICAN MARINE ASSN., 414 Washington St., New York City.

AMERICAN RAILWAY ASSN., 30 Vesey St., New York City.

AMERICAN RAILWAY ENGINEERING ASSN., 59 E. Van Buren St., Chicago, Ill.

AMERICAN ROAD BUILDERS ASSN., 914 National Press Building, Washington, D. C.

AMERICAN STEAMSHIP OWNERS ASSN., 11 Broadway, New York City.

ASSOCIATED TRAFFIC CLUBS OF AMERICA, 418 S. Market St., Chicago, Ill.

COUNCIL OF AMERICAN SHIPBUILDERS, INC., 50 Broadway, New York City.

CRUFT LABORATORY, Harvard University, Cambridge, Mass.

INTERNATIONAL AMATEUR RADIO UNION, 1711 Park Street, Hartford, Conn.

MARITIME ASSN. OF THE PORT OF NEW YORK, 78 Broad St., New York City.

NATIONAL AERONAUTIC ASSN., 910 17th St., Washington, D. C.

NATIONAL ASSOCIATION OF BROADCASTERS, 1265 Broadway, New York City.

NATIONAL ASSN. OF OWNERS OF RAILROAD SECURITIES, 11 E. 36th Street, New York City.

NATIONAL COUNCIL OF AMERICAN IMPORTERS AND TRADERS, INC., 45 E. 17th St., New York City.

NATIONAL HIGHWAY TRAFFIC ASSN., 12 E. 53rd St., New York City.

NATIONAL INDUSTRIAL TRAFFIC LEAGUE, 58 E. Washington Street, Chicago, Ill.

NORTH AMERICAN EXPORT GRAIN ASSN., INC., 2 Broadway, New York City.

RAILROAD SECURITIES OWNERS ASSN., 501 Chandler Building, Washington, D. C.

RAILWAY BUSINESS ASSN., 1403 Packard Building, Philadelphia, Pa.

TRAFFIC ASSN. OF AMERICA, 27 William St., New York City.

TRAFFIC VIGILANCE LEAGUE, INC., 186 Fifth Avenue, New York City.

UNITED STATES BUREAU OF STANDARDS, Washington, D. C.

UNITED STATES NAVAL RESEARCH LABORATORY, Washington, D. C.

UNITED STATES SHIP OPERATORS ASSN., INC., 149 Broadway, New York City.

WESTERN RAILWAYS' COMMITTEE ON PUBLIC RELATIONS, 105 W. Adams Street, Chicago, Ill.

PART FIVE

SOCIAL CONDITIONS AND AIMS

DIVISION XIV

IMMIGRATION AND POPULATION

RACE CONDITIONS IN THE UNITED STATES

BY HARRY H. LAUGHLIN

CARNEGIE INSTITUTION OF WASHINGTON

THIRD INTERNATIONAL CONGRESS OF EUGENICS

In the critical study of race conditions in the United States, the outstanding event of the year 1932 was the Third International Congress of Eugenics, which was held at the American Museum of Natural History in New York City in August and September. This congress and exhibit brought together scientific studies on many aspects of race problems in the United States and other countries.

CONTROL OF IMMIGRATION

Cuba, still being an immigrant-receiving country, is much concerned about the race and family-stock quality of her incoming migrants. Dr. D. F. Ramos of Havana says in his paper on "Control of Immigration": "At the present moment the control of immigration has become a matter of supreme importance to all nations of the globe in its relation to economics, owing to its influence on the cost of labor; but efficient control is far more important from the viewpoint of its influence on the biological constitution of each country, since upon this are based its social, cultural and political conditions. The newcomers will influence biologically the native

population or rather I should say, the population that will result from the intermingling of the natives and immigrants, or the descendants of these, in turn, will be profoundly affected in their characteristics, which will comprise in their total and individual value, the distinct hereditary factors that primarily were carried in the Germ Plasm of both groups. In a biological study of immigration control, therefore, we must consider the racial and individual differences existing between the native and the immigrant population; this in both their mental and physical characteristics.

"Civilization at present may be said to have eliminated the barriers that formerly prevented the migration of the masses. But the natural physical barriers of other times have been replaced by political ones. Access to nearly all nations is regulated by special legislation and it may be said that our main object should be to influence legislation so that it may coincide as far as possible with the biological requirements of the people who inhabit the country, and with a common international plan for the well-being of humanity. * * * Every nation has the right to investigate the complete biological condition of in-

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dividuals (somatic and germinal), desiring to reside in its territory, or to bar or limit to the citizens of those nations that do not allow said investigation, as well as those individuals who, as the result of the investigation, may prove capable of transmitting undesirable conditions. Deportation of immigrants or their descendants of the first generation when it is proven that they possess inadmissible characteristics. In case of mixed descendants, verification of possible inheritance of said characteristics from immigrant gamete, and if not found, to proceed to final admission of the individual."

PRESERVATION OF RACIAL INTEGRITY

Virginia's effort to preserve racial integrity was related by Dr. W. A. Plecker of Richmond. "The legislature of Virginia, believing that an effort should be made to prevent or retard the fusion of the races, in 1924 passed an act defining a white person as one with no Negro heritage, and a Negro as one with any ascertainable degree of such Negro heritage. The law also forbids intermarriage of whites and persons who are colored by this definition, and forbids the registration as white in the Bureau of Vital Statistics, on a birth or death certificate, of an individual with any ascertainable trace of Negro blood. The law permits to be classed as white an individual of fifteen-sixteenths white heritage and one-sixteenth or less of the heritage of the North American Indian, provided there is no Negro admixture.

"The Bureau of Vital Statistics, in connection with the registration of births, deaths, and marriages correctly by races, is making as complete a study as possible, with existing facilities and opportunities, of the population of the State by racial descent. The conclusion arrived at after study of history, ethnological investigations, old birth, death, marriage, tax, and census records, some going back over a century, and upon the testimony of old persons yet living, is that none of the Virginia mixed breeds claiming recognition as Indians are free

from Negro admixture. Under this ruling none claiming to be Indian may under the law intermarry with whites.

"Cases are cited of families of negroes claiming recognition as white through groundless assertion of Indian and white descent, with no Negro admixture, which have been traced back to Negro slave origin about 125 years ago, or to Negroes who had been freed from slavery and who are classed in the 1830 U. S. census reports and in state records as free Negroes. The Bureau is accumulating information from all available sources as to the racial composition of families and large groups of families, and is giving out this information to inquirers who are contemplating marriage, to school authorities, and to various State departments needing such information."

EFFECT OF MIGRATION ON NEGRO INCREASE

Professor S. J. Holmes, University of California, presented a paper on this subject saying: "Negroes from the southern states have migrated into the north ever since the period of emancipation but during the great war the influx swelled to the proportions of an extensive mass movement. Between 1920 and 1930 the Negro population of the northern and western states increased considerably, owing largely to continued migration from the south. Previous to 1930 deaths have exceeded births among the Negroes of most northern states. Migrants went north to their own destruction. But during the last few years births have come to exceed deaths among northern Negroes. This is due largely to improved sanitation and especially to the marked reduction in infant mortality which has been more than cut in half in some states within a decade. At present northern Negroes are apparently increasing through their own birth rate. This fact is due largely to the exceptionally favorable age composition of the Negro population. Miss Parker and the writer have shown that in 1920 the Negroes in fourteen northern states were not

RACE CONDITIONS IN THE UNITED STATES

sufficiently prolific to reproduce themselves in a stabilized population. Since 1920 the vital statistics of northern Negroes have considerably improved. How nearly the northern Negroes had come to reproducing themselves in the census year 1930, we do not know in the absence of birth and mortality statistics for that year. The proportion of children under five years of age among the northern Negroes in 1930 was below the required ratio for the maintenance of a stabilized population, but this may be due in part to recent migration.

A STUDY OF CRIME AND RACE DESCENT

A study of race descent of inmates found in 242 state and Federal penal institutions in the United States on October 1, 1931, found 186,256 inmates, according to a presentation of the subject by Dr. H. H. Laughlin. In collaboration with the wardens and superintendents of these particular institutions, this particular research classified these inmates by race and nativity. Comparison is made between the crime-race situation in the United States in 1920, contrasted with the same situation in 1930. Our laws contemplate keeping out all alien criminals and persons likely to become public charges. Nevertheless, in 1920 we were permitting the alien crime rate to exceed slightly the crime rate for the whole population. By 1930 we had reduced the alien crime rate to a little more than two-thirds that for the whole population. In these studies, crime rate, or crime quota, for any particular group is determined by dividing the percentage of persons of the particular group in the whole United States by the percentage of persons of the particular racial group in the prisons at the particular time.

INVENTIVENESS BY RACIAL STOCK

An exhibit of inventiveness by racial stock in the United States, 1927, showed the results of the first-hand study of Old World race descent of 7,373 persons (all of whom responded to the inquiry) out of all patentees of the first 10,000 patents issued by the

United States in 1927. In this study race stock is computed in "terms of eighths," each patentee giving his own descent as accurately as possible by eighths. These eighths are accumulated regardless of combination in the individual and the time elapsed since immigration. In the following results 1.00 equals par, which means that the particular racial stock in the United States has an inventive rate (determined by number of patents) exactly proportional to its total numbers in the whole population of the United States. And a rate of 2. means that the particular stock is twice as inventive as that of the whole population. A rate of .5 means that the particular stock is one-half as inventive as the whole population. The exhibit showed the following findings:

French	2.92
Swedish	2.45
Dutch	1.97
Danish	1.89
German	1.65
Norwegian	1.60
Swiss	1.41
Irish	1.11
Scotch	1.08
English	1.01
Welsh	.90
Austrian	.83
Russian	.72
Czechoslovakian	.60
All Others	.45
Italian	.40
Polish	.30
Belgian	.20
Latin-American	.10
African	.03

INTELLIGENCE TEST ABILITY OF IMMIGRANTS

The Immigrant is essentially breeding stock for future generations of Americans. Studies of intelligence tests of immigrants developed by the Public Health Service have shown in general the desirability and feasibility of keeping out of the United States as immigrants all persons, regardless of race, who as adults do not measure up to the ten-year-old mental level. Dr. Lawrence Kolb of the U. S. Public Health Service, shows the results of many tests by immi-

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grant groups, classified by age, literacy, and urban or rural origin. In the tables, Dr. Kolb contrasted his tests of children of German and South Italian immigrants. Among his findings are the following:

PERCENTAGE OF SUCCESS ON FOUR TESTS

Children of German and South Italian Immigrants
(All literate)

	Per cent German	Succeeding South Italian
Number of Cases.....	26	100
Drawing Designs from Memory.....	73.1	23.0
Arranging Weights.....	100.0	87.8
Geometric Figures, 1st Trial.....	83.3	26.3
Ball and Field 12-Year Level.....	41.7	17.7
8-Year and 12-Year Level	79.2	53.5

INTELLIGENCE QUOTIENTS

Children of German and South Italian Immigrants

	German	South Italian
Median Age.....	9	9.33

Ferguson Form Board Test

Number of Cases.....	34	100
Median Intelligence Quotient ..	120.3	82.2

Porteus Maze Test

Number of Cases.....	24	29
Median Intelligence Quotient ..	122.2	100.0

MEDIAN SCORES ON FIVE TESTS

Children of German and South Italian Immigrants

	German	South Italian
Number of Cases.....	27	100
Healy Construction "A"		
Median Score—Time Seconds..	93	276
Healy Construction "B"		
Median Score—Time Seconds..	91	224
Gwyn Triangle		
Median Score—Time Seconds..	67	77
Pintner Cubes		
Median Score—Correct.....	7	5
Repeating Digits		
Median Repeated		
Forward.....	5	5
Backward.....	4	3

PHYSICAL FACTORS IN RACE SURVIVAL

Dr. C. G. Campbell presented this subject as follows: "If medical science does not address itself equally to sustaining and building up racial physical qualities and racial vitality and resistance, as well as to individual palliation and relief, it promises to injure rather than to improve the racial prospect for survival. * * *

"The first and ever-present problem of a race is whether it is increasing or diminishing in its ability to overcome the obstacles to its survival. It has been usual to stress improvement in the general intellectual quality of a race as the prime desideratum. This unquestionably has its value, but physical factors may be seen to precede this in importance. Biological evolution is essentially a physical phenomenon. Hence whatever may be accomplished in other directions, the racial outlook can only suffer if the physical factors that go to insure race survival are impaired. In the wild state of man physical factors have been of supreme survival value. Civilized man is inclined to relegate these factors to a secondary position. But the human race has not yet passed the point, nor ever will, when they can be ignored.

"The most important physical quality requisite for survival is the physical ability of the female element of a race to bear and rear offspring adequate to maintain its numbers. Biological nature solves this problem by eliminating the weaker and inadequate female elements, thus maintaining, or augmenting, this important survival factor. Man's civilization on the other hand tends constantly to impair this factor of fundamental survival value. Data are cited and this question is discussed at some length. Turning to general physical factors of racial survival, the tendency to longevity is the broadest evidence of physical fitness, and this tendency is demonstrably hereditary. Physical malformations and organic imperfections, which are hereditary, tend to be rapidly eliminated in nature, but they are preserved and per-

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petuated in our civilization. It is unessential to decide whether particular diseases are actually transmitted from parent to offspring. The practical point is that the tendency and predisposition to them is shown to be hereditary by their high incidence in particular family strains."

IMMIGRATION AND EMIGRATION

BY PETER F. SNYDER

ASSISTANT TO THE SECRETARY OF LABOR

ANALYSIS OF IMMIGRATION

Admissions and Departures.—The fiscal year ended June 30, 1932, marked a further drastic decline in immigration to the United States. Emigration from the United States, while not numerically larger than that of past years, far exceeded the influx. There resulted a net population decrease of 112,786, which is strikingly in contrast with the average annual net increase of the years 1908 to 1930, which was 264,459. The net population decrease of 1931 was 10,237.

During the fiscal year 1932 there were 174,871 aliens, both immigrant and non-immigrant, who entered the United States. In 1931 arrivals totaled 280,679. The decline was at a rate of 37.7%. Immigrants, i.e., aliens, contemplating permanent residence, total only 35,576, compared with 97,139 for the previous year. Non-immigrants, i.e., aliens, entering temporarily or in transit, also returning residents, numbered 139,295, compared with 183,540 in the previous year. Emigrants, i.e., aliens, permanently departing, were 103,295, as compared with 61,882 for the previous year. Non-emigrants, i. e., aliens, departing with intention to return, also departing temporary visitors, were 184,362, the comparable figure of the previous year being 229,034.

The percentage decline of immigrant admissions was 63.4, the most drastic in history. Of the year's total, 35,576, there were 12,983 quota immigrants and 21,013 non-quota immigrants. The largest element of the latter class, 9,328, were natives of the non-quota countries of the Western Hemisphere. Next in order of numerical importance were 5,779 wives, and

3,415 children, of United States citizens. Ministers of religion, with their wives and children, numbered 504. Professors of universities and colleges, with their wives and children, numbered only 156. There were 1,119 students admitted as such during the year. Husbands of United States citizens, accorded non-quota status, were 296 in number. In each of these classes there was a decrease by comparison with previous years, a most marked reduction being in the admissions of natives of non-quota countries. This class, which averaged 111,259 in the six years, 1925 to 1930, was reduced to 21,051 in 1931 and to 9,388 in 1932.

Immigration Sources.—During the past fiscal year Europe as a whole sent us 20,579 immigrants, or 57% of the total influx. Countries of North, Central and South America contributed 12,577, or 35% of the total. Asia sent 1,931, or 5.7%, while Africa, Australasia and other areas all together contributed only 489, or 1.3%. Europe's percentage of contribution declined during the year, while that of other areas increased. The six European countries that sent most immigrants during the fiscal year 1932 were Italy, 6,662; Germany, 2,670; the United Kingdom, 2,155; Poland, 1,296; Greece, 877; France, 854. In the previous fiscal year the Irish Free State and Czechoslovakia were leading contributors, but in 1932 they sent only 441 and 494, respectively. A drastic reduction in immigration from Mexico continued in effect throughout the year. Since 1927, when the high tide of Mexican immigration brought 67,721 persons into the United States from that country,

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the recession has been progressive. In 1930 the movement was 12,703. In 1931 it fell 75%, to 3,333. In 1932 it was further reduced to 2,171. Canadian immigration likewise has been reduced. In 1930 admissions from that country were 63,502. In 1931 a 65% reduction was shown in the figure 21,687, while in 1932 a further 64% reduction was effected when admissions were limited to 7,927.

Sex Classification.—Immigrant females continue to outnumber immigrant males. This is a development of the past three years. Over a long period of years, or until 1930, the average immigrant influx was 63.4% male and 36.6% female. In the year 1932, however, the proportions were almost exactly reversed, immigrants being 63.6% female (21,659) and 36.4% male (13,917).

Non-immigrant Arrivals.—The year's record shows a considerable decline in the number of alien residents of the United States returning from temporary visits abroad. This is always the largest element of the non-immigrant class. In 1931 returning residents were 91,201, while in 1932 they numbered only 66,879. In other non-immigrant classes there appear declining numbers, as in temporary visitors for business, 17,150 in 1931 and only 13,741 in 1932; temporary visitors for pleasure, 38,486 in 1931 and only 26,724 in 1932; aliens in continuous transit through the United States, 32,169 in 1931 and only 28,678 in 1932. A subdivision of the temporary visitor classes shows the English far in the lead, 2,700 coming for business and 5,476 for pleasure. Germans are next, with 1,747 coming for business and 2,467 for pleasure. Of the 66,879 returning alien residents, 12,932 were born in Germany, 7,258 in Italy, 5,980 in England, 4,269 in Scotland, 3,636 in Japan, 2,339 in Sweden, 1,964 in Norway, and 1,575 in China.

ANALYSIS OF EMIGRATION

Departures.—Males continue to predominate in statistics of emigration. In 1932 there were 66,859 immigrant males (64.7%) and 36,436 immigrant females (35.3%). Although

emigrant departures increased 60%, the proportions of sex representation remained practically constant. In the previous year (1931) emigrant males were 40,857, or 66%, while emigrant females were 21,025, or 34%. In view of the extraordinary increase in the number of emigrant aliens, it is interesting to note that most of those departing had only a few years' residence in the United States. There were 49,130 who had lived here from 1 to 5 years and 28,279 whose residence was from 5 to 10 years. There were 11,396 who had remained from 10 to 15 years and 7,987 who had lived here 15 to 20 years. Those whose residence was from 20 to 25 years numbered 3,672, while those who had remained 25 years or more numbered 2,831. By far the largest racial group departing was the Mexican, numbering 36,992. There were 8,478 English, 6,953 Germans, 5,403 Scandinavians, 4,724 Scotch, 3,606 Spanish, 5,371 Italian, 3,509 Irish, 2,646 French and 2,375 Polish.

Notwithstanding the general trend, which presents a picture of more emigration than immigration, a few countries sent us more persons as immigrants than they received back as emigrants. There were 6,547 Italians who came to us from Italy and 4,768 Italians who returned to that country. There were 253 immigrants from Syria and only 117 emigrants to Syria. Palestine is credited with 163 immigrants and only 123 emigrants, notwithstanding there were 2,755 immigrant and 452 emigrant Hebrews.

CHINESE

The net decline of alien Chinese residents of the United States during the fiscal year 1932 was drastic. There were 6,372 admissions, of whom 545 were immigrants and 5,827 were non-immigrants. Departures numbered 10,399, of whom 3,311 were emigrants and 7,088 were non-emigrants. The net decrease of population thereby was 4,027. There were, however, 3,252 American citizens of Chinese race admitted during the year, 2,384 of them returning from temporary visits abroad. Only 76 alien Chinese seamen deserted from vessels at

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American ports during the year, a material decrease from the small number of 111 last year and 387 in the 1930 fiscal period.

DEPORTATION OF ALIENS

Deportees.—During the 1932 fiscal year a total of 19,426 aliens were arrested and deported, as compared with 18,142 in the preceding year and 16,631 for the fiscal year 1930. In addition to those actually deported there were 10,775 subject to deportation who departed voluntarily. Of the total of 19,426 expulsions, 6,530 were deported to Europe, 7,116 to Mexico, 2,379 to China and 2,338 to Canada. European countries receiving most were Italy, 996; Germany, 596; England, 569; Spain, 508; Poland, 389; Greece, 364; and Czechoslovakia, 304. Most of those deported were found in five American states, i.e., Texas, 4,655; New York, 3,513; Arizona, 2,396; California, 2,190; and Michigan, 1,154. Persons found in the United States without proper visas under the Immigration Act of 1924 made up the largest class of deportees. Their number was 8,167, of whom 2,940 were Mexicans and 1,395 were Chinese. The next largest class is that of persons who remained longer than permitted. Their number was 3,284.

Criminals.—During the year there were deported 2,804 aliens of the criminal and immoral classes, including 755 who were criminals at time of entry; 954 who were convicted of crimes involving moral turpitude after entry; 138 narcotic law violators, 906 of the prostitute and procurer classes and 51 of the anarchistic or communistic class. Expulsions of narcotic law violators increased greatly, the number of 1931 deportations being only 44. Likewise expulsions of the anarchistic or communistic class increased, as only 18 were deported in 1931. More than half of the criminal and immoral deportees were Mexicans, the total of that race being 1,416. There were also 260 English, 170 Italian, 148 Irish, 136 French, 108 German and 104 Scotch.

Mental Cases.—Deportation for causes existing prior to entry was effected in 492 cases, the principal

cause, insanity, being responsible for 274. In addition, there were 615 aliens deported because mentally or physically defective at time of entry. A total of 1,403 were deported because of illiteracy, 1,202 because of unlawful entry after previous expulsion, and 574 because of entry without inspection.

Removal of Distressed Aliens.—During 1932 there were returned to their native lands 2,637 aliens who applied for relief on account of indigence. In the previous year there were only 541 such persons. Most of the 2,637 (1,982 male and 655 female) were found in the populous states—696 in Michigan, 592 in New York, 388 in Illinois, 209 in Pennsylvania, 160 in Ohio and 103 in Wisconsin. They were of all nationalities, but the largest number were returned to the British Isles, 578 to Scotland, 405 to England, 133 to the Irish Free State, 90 to Northern Ireland and 45 to Wales. Italy received back 289, Germany 244, Mexico 159 and Sweden 125.

THE SECRETARY OF LABOR'S ANNUAL REPORT

Administration.—In his annual report for 1932, the Secretary of Labor directs attention to his recommendations in behalf of measures which will permit of a more liberal administration of the immigration laws. He endorses two statutes—one an act of Congress which amends the drastic law of March 4, 1929, so as to permit aliens who have been deported to again apply for admission to the United States; and another which confers non-quota status on the alien husbands of American citizen women in cases where marriage occurred before July 1, 1932.

Political and Economic Aspects.—The Secretary of Labor expresses gratification because of the ability of the Department to effect expulsion of aliens, particularly criminals and aliens who are members of or affiliated with organizations whose expressed purpose is to bring about the overthrow of our institutions by violence. In directing attention to the drastic curtailment of immigration, the Sec-

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retary says: "It is bewildering to contemplate the additional strain that would have been imposed upon our condition and resources in the past few years if general immigration had not been drastically curtailed; if hundreds of thousands had been permitted to enter yearly as in the past. * * * In the year 1907 new permanent arrivals reached the highest figure in the history of the country, 1,285,349, more than thirty-six times the similar

admissions (35,576) in the year 1932. * * * It needs no extended comment to demonstrate that the present restrictive laws, with their adequate and proper enforcement, have given the economic protection so absolutely necessary in these times, in the conservation of the restricted employment opportunities for our own citizens and the aliens in the country who have passed successfully the tests for lawful admission."

CITIZENSHIP AND NATURALIZATION

BY RAYMOND F. CRIST

COMMISSIONER OF NATURALIZATION, DEPARTMENT OF LABOR

CITIZENSHIP

Status by Naturalization.—The fundamental authority for citizenship in the United States rests upon two provisions in the Constitution (see *THE AMERICAN YEAR BOOK*, 1928). The status of citizenship conferred is a conditional one, both by Constitutional and statutory provisions. Expatriation may ensue on absence from the United States of two years with residence in the state of former allegiance, or five years' absence in any other foreign state. Such expatriation may be overcome by action through diplomatic or consular officers of the United States under rules of the Department of State. A permanent residence established outside of the United States within five years of acquisition of American citizenship is ground for setting aside the naturalization by judicial procedure. Citizenship terminates upon taking oath of allegiance to any foreign sovereignty, whether or not citizenship be acquired under the oath, and likewise upon full naturalization elsewhere. These last two acts apply equally to naturalized and native citizens.

MACHINERY OF NATURALIZATION

Limitations.—Naturalization is not open to all races, but is limited to those who come within the language of Section 2169 of the Revised Stat-

utes of the United States (U. S. C., t. 8, Sec. 359), by which only aliens who are white persons or of African nativity or descent are included. Within such limitations the various naturalization laws have been enacted by Congress.

Judicial Jurisdiction.—Congress has conferred naturalization jurisdiction upon State Courts which have a seal and a clerk and jurisdiction in actions at law or equity or law and equity in which the amount in controversy is unlimited. The Territorial Courts for Alaska and Hawaii, the Supreme Court of the District of Columbia, the United States District Court for Puerto Rico, and the District Court of the Virgin Islands have been similarly empowered by Congress. Citizens of the Philippine Islands are not citizens of the United States but owe allegiance thereto. They are not within the jurisdiction of the naturalization law, except those who perform certain specified honorable service in the United States Navy. Citizenship in the Philippine Islands is conferred under the Philippine naturalization law of 1920 upon aliens resident in those islands.

Bureau of Naturalization.—The Bureau accomplishes the administration of these laws through the naturalization field service, with branches located in 38 cities throughout the United States, including Alaska, Ha-

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waii, Puerto Rico, and the Virgin Islands, subject to the direction of the Commissioner of Naturalization from the administration headquarters in the Department of Labor in Washington.

NATURALIZATION PROBLEMS

Alien Population.—The naturalization problem arises out of the millions of persons of foreign birth who have sought the opportunities that this country offers through its wonderful resources and beneficent laws. The 1930 Census reports 13,366,407 alien-born white men, women and children. Of this number, 7,859,193 were naturalized, 1,246,521 had taken out first papers, 3,787,086 were alien, with 473,607 status unknown.

NATURALIZATION PROCEDURE

Process of Application.—The first step consists in applying to the Bureau of Naturalization for the "certificate of arrival" to show the date, place, and manner of the alien's arrival in the United States. The entry must have been for permanent residence under the immigration law in force at the time of entry in order that a certificate of arrival may be issued to insure naturalization. Those arriving prior to June 29, 1906, are exempt from the certificate of arrival requirements for the declaration of intention.

Judicial Action.—Upon the issuance of the certificate of arrival, the applicant appears before the appropriate clerk of court and makes formal declaration of intention to become a citizen within seven years from the date of such declaration. After five years of unbroken residence, if the declaration of intention should be two years old, the alien may file his petition for admission to citizenship.

Residential Requirements.—The petition for citizenship must be completed by the affidavits of two subscribing witnesses who must be citizens of the United States and who shall testify to all of the period of residence for which they are competent, and also to the good moral character of the petitioner during such period. Five years of residence and

good moral character immediately preceding the date of the petition must be established, although more than two witnesses may be used for different periods of residence. At least the last six months of residence must be within the county where the petition is filed. No petition for citizenship may be heard by the court until after ninety days have elapsed. Some exceptions to these general provisions are made in favor of soldiers, sailors, enlisted men in the Navy and Marine Corps, and in favor of native American women who desire to resume their citizenship lost through marriage.

As a part of the judicial proceeding, naturalization examiners who have been designated by the Judges of the U. S. District Courts to conduct naturalization hearings hold preliminary hearings and make findings and recommendations to the courts. In such cases the witnesses do not appear in the courts unless objection is offered by the Government examiner. Residence is established in all cases of arrivals from and after July 1, 1924, by reference to the immigration visas which are in the custody of the Bureau of Naturalization. In all other cases reference is made to the immigration records at the various ports of entry into the United States. There were 37,724 visas received in the Bureau of Naturalization in 1932, making a total of 1,924,709 in the archives of the Bureau.

Naturalization Fees.—The fees prescribed for naturalization are as follows: Certificate of arrival, \$5; declaration of intention, \$5; petition for citizenship, \$10; certificate of repatriation, \$10. Where there is no record and the alien arrived prior to June 3, 1921, the immigration authorities will make a record of the entry of such alien upon satisfactory evidence, for which a fee of \$20 is payable to the Commissioner General of Immigration. The fee for a certificate of derivative citizenship is \$10.

PETITIONS AND GRANTS

Since the Act of June 29, 1905, became operative, up to and including June 30, 1932, there have been 6,-

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129,862 declarations of intention made by candidates for citizenship, with 3,293,990 certificates of citizenship granted upon the 3,706,233 petitions for citizenship filed. During the year 1932, there were 101,345 declarations of intention made, of which 75,145 were made by men and 26,200 by women of foreign birth. A total of 131,062 petitioned for admission to citizenship, included in which were 89,788 men and 41,274 women. There were 136,600 who received certificates of citizenship, of which 95,901 were men and 40,699 were women.

NATURALIZED PERSONS

(Fiscal Year, 1931-32)

Country	Number
Repatriated Americans.....	2,356
British Empire:	
Ireland.....	14,427
Canada.....	10,145
England.....	6,292
Scotland.....	3,797
Wales.....	367
Australia.....	106
Others.....	2,035
Total, British Empire.....	37,169
Italy.....	20,894
Germany.....	17,877
Poland.....	14,282
Russia.....	7,627
Sweden.....	4,110
Czechoslovakia.....	4,034
Serbs, Croats and Slovenes.....	2,978
Norway.....	2,856
Greece.....	2,346
Hungary.....	2,225
Rumania.....	2,093
Austria.....	1,970
Lithuania.....	1,900
Denmark.....	1,451
Finland.....	1,270
Turkey.....	1,258
Switzerland.....	1,217
Netherlands.....	1,139
France.....	916
Portugal.....	815
Spain.....	620
Belgium.....	566
Syria and the Lebanon.....	497
Latvia.....	405
Mexico.....	249
Albania.....	217
Bulgaria.....	200
Estonia.....	143
Brazil.....	126
Others.....	794
Total.....	136,600

SPECIAL NATURALIZATION

Women.—On September 22, 1922, Congress passed a law which required women to become citizens independently of the action of their husbands.

This law repealed the provisions of the law by which the wife became a citizen upon the naturalization of her husband or lost it upon marriage to an alien. Since that time the records show that there have been 428,492 women who made the declaration of intention to become citizens of the United States, 356,851 who filed petitions for citizenship, and 332,726 who were admitted to citizenship under the general provisions of the Act of 1906, the Act of September 22, 1922, and subsequent legislation heretofore discussed which liberalized the naturalization procedure for women (see *THE AMERICAN YEAR BOOK*, 1931).

Exemptions to World War Veterans.—During the year ended June 30, 1932, there were 19 veterans of the American forces of the World War who filed petitions for citizenship under the special provisions of the law of May 25, 1932. The total number of veterans naturalized under such special exemptions is 303,732.

NEW LEGISLATION

Veterans' Naturalization.—The Act of Congress approved May 25, 1932, renewed the special wartime legislation on behalf of the veterans of the American forces of the World War by which they could become naturalized without expense. An exception was made in the cases of those veterans who did not take up their permanent residence in the United States until after March 3, 1924, of whom the certificate of arrival was required with the usual fee.

New Certificates.—More liberal legislation was enacted regarding the issuance of new certificates of citizenship, and those who entered the United States prior to June 29, 1906, were exempted from the certificate of arrival requirement in the naturalization proceeding.

Virgin Island Natives.—The Act of June 28, 1932, declared certain natives of the Virgin Islands of the United States to be citizens of the United States who had not heretofore been given citizenship, if they were residing within the jurisdiction of the United States on the date of

POPULATION STATISTICS

the enactment of the law and if they were not citizens or subjects of some foreign country.

Women of Hawaii.—On July 2, 1932, the Congress extended citizenship rights to a limited number of wo-

men born in Hawaii prior to June 14, 1900, who were residing in the United States on the date of the enactment of this law. This enabled certain women to acquire American citizenship lost by marriage.

POPULATION STATISTICS

BY LEON E. TRUESDELL

CHIEF STATISTICIAN FOR POPULATION, U. S. BUREAU OF THE CENSUS

TOTAL POPULATION

Population Growth.—The population of Continental United States on April 1, 1930, the date of the Fifteenth Census, was 122,775,046, as compared with 105,710,620 on Jan. 1, 1920, the date of the last preceding census. In 1790, when the First Census was taken, the population was only 3,929,214.

POPULATION OF CONTINENTAL UNITED STATES: 1790 TO 1930

Year	Population	Increase	
		Number	Per cent
1930.....	122,775,046	17,064,426	16.1
1920.....	105,710,620	13,738,354	14.9
1910.....	91,972,266	15,977,691	21.0
1900.....	75,994,575	13,046,861	20.7
1890.....	62,947,714	12,791,931	25.5
1880.....	50,155,783	11,597,412	30.1
1870.....	38,558,371	7,115,050	22.6
1860.....	31,443,321	8,251,445	35.6
1850.....	23,191,876	6,122,423	35.9
1840.....	17,069,453	4,203,433	32.7
1830.....	12,866,020	3,227,567	33.5
1820.....	9,638,453	2,398,572	33.1
1810.....	7,239,881	1,931,398	36.4
1800.....	5,308,483	1,379,269	35.1
1790.....	3,929,214	.....	....

Intercensal Estimates.—As a basis for computing birth rates, death rates, per capita expenditures, etc., it is necessary to have population figures for dates between one census and the next. Such estimates are made for the United States as a whole on the basis of registered births and deaths, and net immigration—this last being just now a minus quantity. State estimates are obtained by prorating the United States total, but

estimates for cities are based on the assumption that the annual addition to the population since the 1930 census is the same as the annual average for the period 1920-1930. Specifically, the estimated population of a given city on July 1, 1932, is obtained by adding to its 1930 population 27/123 of the increase in its population between the censuses of 1920 and 1930.

BIRTHS AND DEATHS

Registration Area.—Among the most fundamental of the current statistics relative to population are those of births and deaths. Neither birth registration nor death registration has yet reached such a stage of development in all of the States of the Union that the figures are considered satisfactory for compilation by the Census Bureau. The registration area, which is made up of those States having satisfactory registration systems, is being gradually extended, however, until the death registration area now (December, 1932) includes all but one of the States and about 96 per cent of the population, and the birth registration area includes all but two States and about 95 per cent of the population.

Summary of Recent Data.—The table (p. 524) gives for each year from 1920 to 1931, the number of births and deaths, the annual rates per 1,000 of the population, and a 3-year moving average rate, which indicates the trend with much less variation on account of fortuitous conditions than the single-year rates.

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BIRTHS AND DEATHS IN THE REGISTRATION AREA; 1920 TO 1931

(The birth registration area included 59.8 per cent of the total population of the country in 1920 and 94.7 per cent in 1931; the death registration area included 82.2 per cent of the population in 1920 and 96.3 per cent in 1931.)

Year	Births			Deaths		
	Number	Rate per 1,000 of the population		Number	Rate per 1,000 of the population	
		Annual	3-year moving average		Annual	3-year moving average
1931.....	2,112,760	18.0	....	1,322,589	11.1	....
1930.....	2,203,958	18.9	18.6	1,343,358	11.3	11.4
1929.....	2,169,920	18.9	19.2	1,386,363	11.9	11.8
1928.....	2,233,149	19.7	19.7	1,378,675	12.0	11.8
1927.....	2,137,836	20.6	20.3	1,236,949	11.4	11.9
1926.....	1,856,068	20.6	20.9	1,285,927	12.2	11.8
1925.....	1,878,880	21.4	21.6	1,219,019	11.8	12.0
1924.....	1,930,614	22.6	22.2	1,173,990	11.8	12.0
1923.....	1,792,646	22.4	22.5	1,193,017	12.3	12.0
1922.....	1,774,911	22.5	23.1	1,101,863	11.8	11.9
1921.....	1,714,261	24.3	23.5	1,032,009	11.6	12.2
1920.....	1,508,874	23.7	....	1,142,558	13.1	....

POPULATION CLASSIFICATIONS

Urban.—The total population returned in the 1930 census was 122,775,046. Of this number, 68,954,823, or 56.2 per cent, were living in urban territory, which includes all cities and other incorporated places having 2,500 inhabitants, together with a few other places classified as urban under a special rule. The percentage of the population urban in 1920 was 51.4; in 1910, 45.8; in 1900, 40; in 1890, 35.4; and in 1880, the earliest year for which figures are available on the present basis, 28.6.

Rural.—All population living outside the urban territory, as defined above, is classified as rural. The rural population in 1930 was 53,820,223, comprising 30,157,513 persons living on farms in rural territory (rural-farm population), and 23,662,710 not living on farms (rural-nonfarm or "village" population).

Color, Nativity and Sex.—The total population of the United States in 1930 comprised 108,864,207 white persons, 11,891,143 Negroes; 1,422,533 Mexicans; 332,397 Indians, and 264,766 persons of other races, mainly Chinese, Japanese, and Filipinos. Of the white population, 70,136,614 were natives of native parentage; 25,361,186 were natives of foreign or mixed parentage, and 13,366,400 were foreign born. These statistics are sum-

marized, for 1930 and 1920, with citizenship figures for the foreign-born white, in the table following:

POPULATION OF THE UNITED STATES BY COLOR AND NATIVITY: 1930 AND 1920

(With citizenship of the foreign-born white)

Color, nativity, and citizenship	1930	1920*
Total.....	122,775,046	105,710,620
White.....	108,864,207	94,120,374
Native.....	95,497,800	80,864,980
Native parentage.....	70,136,614	58,421,957
Foreign or mixed parentage.....	25,361,186	22,443,023
Foreign born.....	13,366,400	13,255,394
Naturalized.....	7,859,193	6,457,665
First papers.....	1,246,521	1,216,285
Alien.....	3,787,086	4,809,076
Unknown.....	473,607	772,368
Negro.....	11,891,143	10,463,131
Mexican†.....	1,422,533	700,541
Indian.....	332,397	244,437
Chinese.....	74,954	61,639
Japanese.....	138,834	111,010
Filipino.....	45,208	5,603
Hindu.....	3,130	2,507
Korean.....	1,860	1,224
All other.....	780	154

* The white population as classified in 1920 included 700,541 persons (estimated) who would have been counted as Mexicans in 1930. The figures for the white classes affected have been adjusted by deducting the estimated number of Mexicans included.

† Mexicans classified separately for the first time in 1930; 1920 figures estimated on the basis of returns for country of birth, etc.

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Foreign-born Population.—The total foreign-born population of the United States in 1930 was 14,204,149, comprising 13,366,407 foreign-born white; 98,620 foreign-born Negroes; 616,998 Mexicans; 44,086 Chinese; and 70,477 Japanese. The increase in the total foreign-born population amounted to 2 per cent, as compared with an increase of 18.3 per cent in the native population. The foreign-born white population increased only eight-tenths of 1 per cent.

Country of Birth.—Of the 13,366,407 foreign-born whites in the United States in 1930, 1,790,424 were born in Italy, 1,608,814 in Germany, 1,402,032 in Great Britain and Northern Ireland, 1,278,421 in Canada, 1,268,583 in Poland, 1,153,624 in Russia, 1,122,576 in the Scandinavian countries, and 744,810 in the Irish Free State. (For a more extended classification, with separate figures for males and females, see THE AMERICAN YEAR BOOK for 1930, page 526).

Mother Tongue.—The foreign-born white population is classified by mother tongue—that is, the language usually spoken in the home before immigration—in the following table:

**MOTHER TONGUE OF THE FOREIGN-BORN WHITE POPULATION:
1930 AND 1920**

Mother tongue	1930	1920	Per cent 1930
Total.....	13,366,407	*13,255,394	100.0
English and Celtic.....	3,097,021	3,007,932	23.2
Germanic:			
German.....	2,188,006	2,267,128	16.4
Dutch.....	133,142	136,540	1.0
Flemish.....	42,263	45,696	0.3
Scandinavian:			
Swedish.....	615,465	643,203	4.6
Norwegian..	345,522	362,199	2.6
Danish.....	178,944	187,162	1.3
Icelandic...	2,714	2,369	†
Latin & Greek:			
Italian.....	1,808,289	1,624,998	13.5
French.....	523,297	466,956	3.9
Spanish....	126,288	*98,751	0.9
Portuguese..	110,197	105,895	0.8
Rumanian...	56,964	62,336	0.4
Greek.....	189,066	174,658	1.4
Slavic & Lettic:			
Polish.....	965,899	1,077,392	7.2
Czech.....	201,138	234,564	1.5
Slovak.....	240,196	274,948	1.8
Russian....	315,721	392,049	2.4

Mother tongue	1930	1920	Per cent 1930
Slavic & Lettic:			
Ruthenian..	9,800	55,672	{ 0.1 0.4 0.6 0.6
Ukranian...	58,685		
Slovenian...	77,671		
Croatian....	79,802		
Serbian.....	30,121	40,669	0.2
Bulgarian...	12,128	12,853	0.1
Wendish....	1,372	2,039	†
Lithuanian..	165,053	182,227	{ 1.2 0.1
Lettic.....	7,590		
Unclassified:			
Yiddish.....	1,222,658	1,091,820	9.1
Magyar.....	250,393	290,419	1.9
Finnish.....	124,994	132,543	0.9
Estonian....	2,809	1,024	†
Armenian...	51,741	37,647	0.4
Arabic.....	67,830	57,557	0.5
Turkish.....	10,457	6,627	0.1
Albanian....	7,586	5,515	0.1
All other....	3,352	1,228	†
Unknown.....	42,233	7,166	0.3

† Less than 0.1 per cent.

YEAR OF IMMIGRATION

Of the total foreign-born white population in 1930, numbering 13,366,407, there were 4,366,265, or 32.7 per cent, who arrived in this country prior to 1900; 27.5 per cent, who arrived between 1901 and 1910; 12.8 per cent between 1911 and 1914; 4.1 per cent between 1915 and 1919; 11.6 per cent between 1920 and 1924; and 7.2 per cent between 1925 and the census date in 1930. (For the remaining 4 per cent there were no returns as to year of immigration.)

Inability to Speak English.—Of the total foreign-born white population, 869,865, or 6.6 per cent, were returned in the 1930 census as unable to speak English. Of this number, 477,133 were counted as illiterate, while 392,732 were able to read and write, presumably each in his own native language. This last figure is significant as representing approximately the number of persons able to read the foreign-language newspapers, but not those printed in English. Of the 590,095 foreign-born Mexicans in the population of the United States, 324,359, or 55 per cent, were unable to speak English; of the 43,682 foreign-born Chinese, 27.8%; and of the 69,923 foreign-born Japanese, 21.6%.

Age.—The age classification in the census returns is based on age at last

* Adjusted for Mexicans; see Table p. 524.

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birthday, that is, age in completed years. The 1930 population of the United States is distributed in the table which follows, by 5-year age periods, with single years for children under 5. (For ages by sex and comparative figures for earlier censuses, see THE AMERICAN YEAR BOOK for 1930, page 527.)

AGE BY 5-YEAR PERIODS: 1930

Age in years	Number	Per Cent
All ages.....	122,775,046	100.0
Under 5.....	11,444,390	9.3
Under 1.....	2,190,791	1.8
1.....	2,164,565	1.8
2.....	2,326,016	1.9
3.....	2,394,463	2.0
4.....	2,368,555	1.9
5 to 9.....	12,607,609	10.3
10 to 14.....	12,004,877	9.8
15 to 19.....	11,552,115	9.4
20 to 24.....	10,870,378	8.9
25 to 29.....	9,833,608	8.0
30 to 34.....	9,120,421	7.4
35 to 39.....	9,208,645	7.5
40 to 44.....	7,990,195	6.5
45 to 49.....	7,042,279	5.7
50 to 54.....	5,975,804	4.9
55 to 59.....	4,645,677	3.8
60 to 64.....	3,751,221	3.1
65 to 69.....	2,770,605	2.3
70 to 74.....	1,950,004	1.6
75 to 79.....	1,106,390	0.9
80 to 84.....	534,676	0.4
85 to 89.....	205,469	0.2
90 to 94.....	51,664	*
95 to 99.....	11,033	*
100 and over.....	3,964	*
Unknown.....	94,022	0.1

* Less than 0.1 per cent.

Illiteracy.—The Census Bureau defines as illiterate any person 10 years of age or over who is not able to read and write, either in English or in some other language. No specific test of ability to read and write was prescribed, but the enumerators were instructed in 1930 *not* to return the answer "Yes" (which would classify the person as literate) simply because a person was able to write his or her name. In 1930, 4.3 per cent of the population 10 years of age and over was returned as illiterate. The percentage of illiteracy in 1920 was 6; in 1910, 7.7; in 1900, 10.7; in 1890, 13.3; in 1880, 17. (For the number

of illiterates by color and nativity, see THE AMERICAN YEAR BOOK for 1930, page 528.)

School Attendance.—The statistics of school attendance are based on a count of all persons who had attended a school of any kind for any period between Sept. 1, 1929, and April 1, 1930. The returns are presented by single years of age.

SCHOOL ATTENDANCE BY AGE: 1930

Age in years	Total number	Attending school	
		Number	Per cent
5 to 20.....	38,387,032	26,849,639	69.9
5.....	2,505,250	500,734	20.0
6.....	2,515,285	1,667,486	66.3
7 to 13.....	17,209,566	16,398,400	95.3
7.....	2,470,159	2,207,331	89.4
8.....	2,604,215	2,451,048	94.1
9.....	2,512,700	2,401,356	95.6
10.....	2,500,648	2,427,254	97.1
11.....	2,319,394	2,260,735	97.5
12.....	2,480,123	2,408,623	97.1
13.....	2,322,327	2,242,053	96.5
14 to 15.....	4,678,084	4,156,378	88.8
14.....	2,382,385	2,212,825	92.9
15.....	2,295,699	1,943,553	84.7
16 and 17.....	4,663,137	2,669,857	57.3
16.....	2,367,315	1,569,839	66.3
17.....	2,295,822	1,100,018	47.9
18 to 20.....	6,815,710	1,456,784	21.4
18.....	2,357,834	723,524	30.7
19.....	2,235,445	441,814	19.8
20.....	2,222,431	291,446	13.1
21 and over.....		1,034,782	.....

Marital Condition.—The male population 15 years old and over in 1930 was classified by marital condition as follows: single, 34.1 per cent; married, 60 per cent; widowed, 4.6 per cent, and divorced, 1.1 per cent. For females, the corresponding figures are as follows: single, 26.4 per cent, married, 61.1 per cent; widowed, 11.1 per cent, and divorced, 1.3 per cent. The numbers on which these percentages are based are given in THE AMERICAN YEAR BOOK for 1930 (page 528). The statistics of marital condition are especially significant when tabulated by age. As a brief summary of the most important data from such a

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tabulation, the following table is presented, showing the percentage of males and females married and widowed.

PERCENTAGE MARRIED AND WIDOWED

By Age and Sex: 1930

Age in years	Males		Females	
	Married	Widowed	Married	Widowed
15 and over.	60.0	4.6	61.1	11.1
15 to 19.....	1.7	.....	12.6	0.2
15.....	0.1	.....	1.3	.....
16.....	0.2	.....	4.3	0.1
17.....	0.6	.....	9.9	0.2
18.....	2.2	.....	19.2	0.3
19.....	5.8	0.1	28.6	0.5
20 to 24.....	28.1	0.3	51.6	1.0
20.....	11.6	0.2	37.8	0.7
21.....	19.7	0.2	45.2	0.8
22.....	28.2	0.3	52.7	1.0
23.....	37.2	0.4	59.2	1.2
24.....	45.0	0.5	64.5	1.4
25 to 29.....	61.3	0.8	74.3	2.1
25.....	51.2	0.6	68.2	1.7
26.....	56.9	0.7	72.2	1.8
27.....	62.1	0.8	75.3	2.0
28.....	65.7	0.9	76.9	2.4
29.....	70.8	1.0	79.9	2.5
30 to 34.....	76.0	1.3	81.5	3.3
30.....	70.6	1.3	77.8	3.2

Age in years	Males		Females	
	Married	Widowed	Married	Widowed
31.....	76.5	1.1	82.7	2.6
32.....	75.9	1.3	81.6	3.3
33.....	78.8	1.4	83.6	3.4
34.....	79.8	1.5	83.1	3.7
35 to 39.....	81.0	2.0	82.3	5.3
40 to 44.....	82.1	3.0	80.6	8.0
45 to 49.....	82.1	4.3	77.6	11.6
50 to 54.....	81.0	6.3	72.3	16.9
55 to 59.....	79.5	8.4	66.2	23.4
60 to 64.....	76.2	12.4	56.9	33.1
65 to 69.....	71.5	17.8	46.6	44.1
70 to 74.....	64.7	25.4	35.0	55.9
75 and over.....	50.4	41.5	18.2	73.9
Unknown.....	31.2	4.8	36.1	13.8

Gainful Workers.—Persons 10 years old and over who usually work at a gainful occupation are classified as gainful workers. The whole number of gainful workers returned in 1930 was 48,829,920. This number includes both persons working for wages and persons who are conducting business on their own account, such as farmers and small merchants. Persons temporarily unemployed at the time of the census are included in the number of gainful workers.

GAINFUL WORKERS IN THE UNITED STATES, BY SEX: 1900 TO 1930

Item and Sex	1930	1920	1910	1900
Total population:				
Male.....	62,137,080	53,900,431	47,332,277	38,816,448
Female.....	60,637,966	51,810,189	44,639,989	37,178,127
Persons 10 years and over:				
Male.....	49,949,798	42,289,969	37,027,558	29,703,440
Female.....	48,773,249	40,449,346	34,552,712	28,246,384
Gainful workers (persons reporting a gainful occupation):				
Male.....	38,077,804	33,064,737	30,091,564	23,753,836
Female.....	10,752,116	8,549,511	8,075,772	5,319,397
Per cent of total population,:				
Male.....	61.3	61.3	63.6	61.2
Female.....	17.7	16.5	18.1	14.3
Per cent of population 10 years old and over:				
Male.....	76.2	78.2	81.3	80.0
Female.....	22.0	21.1	23.4	18.8

Gainful Workers by Age.—Between 1920 and 1930 there was a striking decrease both in the percentage and in the absolute number of persons

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from 10 to 17 years of age who were gainfully occupied, and especially in the number of children from 10 to 15. Gainfully occupied boys 10 to 15 years old formed 6.4 per cent of the whole number of such boys in 1930, as compared with 11.3 per cent in 1920; and for girls of the same ages the percentage gainfully occupied was only 2.9 in 1930 as against 5.6 ten years earlier. Special significance attaches also to the percentages shown as following a gainful occupation in the ages past middle life, especially in view of figures widely circulated to the effect that three-fourths or more of the men past 60 are dependent on charity for their support. The occupation figures show that 86.8 per cent of the men 60 to 64 years old were gainfully occupied in 1930; 75.7 per cent of those aged 65 to 69; and 57.5 per cent of those aged 70 to 74.

PERSONS GAINFULLY OCCUPIED, BY AGE AND SEX: 1930

Age in years	Total number	Gainfully occupied	
		Number	Per Cent
<i>Males</i>			
10 and over	49,949,798	38,077,804	76.2
10 to 15.....	7,223,425	460,742	6.4
10 to 13.....	4,862,291	162,260	3.3
14.....	1,206,486	110,839	9.2
15.....	1,154,648	187,643	16.3
16.....	1,181,920	386,511	32.7
17.....	1,157,150	577,983	49.9
18 and 19.....	2,264,107	1,599,768	70.7
20 to 24.....	5,336,815	4,799,505	89.9
25 to 29.....	4,860,180	4,714,266	97.0
30 to 34.....	4,561,786	4,454,400	97.6
35 to 39.....	4,679,860	4,571,641	97.7
40 to 44.....	4,136,459	4,036,561	97.6
45 to 49.....	3,671,924	3,569,094	97.2
50 to 54.....	3,131,645	2,996,041	95.7
55 to 59.....	2,425,992	2,256,771	93.0
60 to 64.....	1,941,508	1,684,743	86.8
65 to 69.....	1,417,812	1,072,900	75.7
70 to 74.....	991,647	570,233	57.5
75 and over	915,752	295,616	32.3
Unknown.....	51,816	31,029	59.9

Age in years	Total number	Gainfully occupied	
		Number	Per Cent
<i>Females</i>			
10 and over.....	48,773,249	10,752,116	22.0
10 to 15.....	7,077,151	206,376	2.9
10 to 13.....	4,760,201	73,068	1.5
14.....	1,175,899	46,821	4.0
15.....	1,141,051	86,487	7.6
16.....	1,185,395	201,306	17.0
17.....	1,138,672	313,041	27.5
18 and 19.....	2,329,172	942,445	40.5
20 to 24.....	5,533,563	2,347,548	42.4
25 to 29.....	4,973,428	1,541,411	31.0
30 to 34.....	4,558,635	1,112,927	24.4
35 to 39.....	4,528,785	1,047,601	23.1
40 to 44.....	3,853,736	844,737	21.9
45 to 49.....	3,370,355	706,976	21.0
50 to 54.....	2,844,159	559,050	19.7
55 to 59.....	2,219,685	383,293	17.3
60 to 64.....	1,809,713	265,785	14.7
65 to 69.....	1,352,793	154,142	11.4
70 to 74.....	958,357	72,669	7.6
75 and over.....	997,444	39,407	4.0
Unknown.....	42,206	13,402	31.8

The percentages shown in the table indicate that the age of 40 may not be, as is often stated, the "dead line," for men seeking new jobs, since the proportion gainfully occupied in 1930 was almost as high for men 40 to 44 years old (97.6 per cent) as for men 35 to 39 (97.7 per cent). Further, the next older group, those aged 45 to 49, shows 97.2 per cent occupied, and the group from 50 to 54, 95.7 per cent. In fact, up to the age 60, the diminution in this percentage is not much more than what would result from the increasing number of cases of actual physical disability.

Industries.—The 38,077,804 male gainful workers 10 years of age and over returned in 1930 may be classified according to the industry in which they work, as follows: agriculture, 9,570,359; forestry and fishing, 266,706; extraction of minerals, 1,148,915; manufacturing and mechanical industries, 11,939,985; transportation, 3,997,888; trade, 5,815,335; public

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service (not elsewhere classified), 927,882; professional service, 1,648,030; domestic and personal service, 1,661,024; and industry not specified, 1,101,680.

Unemployment.—In the Census of Unemployment taken in 1930, 2,429,062 gainful workers were returned in Class A, that is, as out of a job, able to work, and looking for a job, and 758,585 more were returned in Class B, that is, as having jobs but on layoff without pay, these figures excluding those sick or voluntarily idle. Gainful workers out of a job constituted 5 per cent of the whole number of gainful workers, or 2 per cent of the total population.

FAMILY STATISTICS

Families and Dwellings.—The term "family," as it is used in the tabulations of the 1930 census, is limited in the main to what might be called private families, excluding institutions, hotels, boarding houses, etc., which have been counted as families in prior censuses. The family in census usage may, therefore, be defined as a group of persons, related either by blood or by marriage or adoption, who live together as one household, usually sharing the same table. The whole number of such families (including 2,357,463 one-person families) was 29,904,663. The population per private family in 1930 was 4.01. The population per family, including the quasi-family groups (for the sake of making the figures comparable with those for the earlier censuses) was 4.10, as compared with 4.34 in 1920, 4.54 in 1910, 4.69 in 1900, and 4.93 in 1890. There has thus been a continuous decline in the average population per family amounting to about two-tenths of an individual per decade. A dwelling is defined as a place where one or more persons regularly sleep. (Vacant dwellings are not included in the count.) The whole number of dwellings occupied by private families in 1930 was 25,204,976. There were thus 1.19 families per dwelling. The dwellings included 22,833,110 occupied by

one family, 1,728,087 occupied by two families, and 643,779 by three or more families. While the multi-family group formed only 2.6 per cent of the whole number of dwellings, it provided accommodations for 12.1 per cent of the families.

Tenure of Home.—Since a home is defined as the living quarters occupied by a family, the number of homes is always the same as the number of families. In the classification by tenure, a home is counted as owned if it is owned wholly or in part by any related member of the family. A house owned by a lodger, however, is counted as rented.

TENURE OF HOMES: 1910 TO 1930

(Figures for 1930 represent private-family homes alone; those for 1920 and 1910 include the premises occupied by the small number of institutions and other quasi-family groups which were counted as families in the respective censuses.)

Tenure	Number	Per cent
All homes, 1930 . . .	29,904,663	100.0
Owned	14,002,074	46.8
Rented	15,319,817	51.2
Tenure unknown	582,772	1.9
All homes, 1920 . . .	24,351,676	100.0
Owned	10,866,960	44.6
Rented	12,943,598	53.2
Tenure unknown	541,118	2.2
All homes, 1910 . . .	20,255,555	100.0
Owned	9,083,711	44.8
Rented	10,697,895	52.8
Tenure unknown	473,949	2.3

Value or Rental of Non-farm Homes.—The census enumerator was instructed to report on the population schedule for each non-farm family the approximate current market value of the home, if it was owned by any member of the family, or the monthly rental paid, if the home was rented. The values and rentals of the non-farm homes have been assembled in 10 groups, and the figures presented in the following tables represent the number of homes in each group.

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OWNED NON-FARM HOMES BY VALUE: 1930

Value	Number	Per cent
Total.....	10,503,386	100.0
Value under \$1,000.....	794,724	7.6
\$1,000 to \$1,499.....	570,047	5.4
1,500 to 1,999.....	531,277	5.1
2,000 to 2,999.....	1,167,325	11.1
3,000 to 4,999.....	2,343,769	22.3
5,000 to 7,499.....	2,297,029	21.9
7,500 to 9,999.....	989,468	9.4
10,000 to 14,999.....	906,557	8.6
15,000 to 19,999.....	339,535	3.2
20,000 and over.....	354,337	3.4
Not reported.....	209,318	2.0
Median value.....	\$4,778	.....

RENTED NON-FARM HOMES BY MONTHLY RENTAL: 1930

Monthly Rental	Number	Per cent
Total.....	12,351,549	100.0
Rental under \$10.....	1,563,952	12.7
\$10 to \$14.....	1,330,927	10.8
15 to 19.....	1,302,387	10.5
20 to 29.....	2,545,208	20.6
30 to 49.....	3,191,435	25.8
50 to 74.....	1,503,401	12.2
75 to 99.....	343,071	2.8
100 to 149.....	163,292	1.3
150 to 199.....	46,297	0.4
200 and over.....	45,750	0.4
Not reported.....	315,829	2.6
Median rental.....	\$27.15	.....

Median Value and Rental.—The median value is the value of that home which would stand in the middle of the series if all the homes were arranged according to value, beginning with the lowest and ending with the highest. The median value of all owned non-farm homes in the United States in 1930 was \$4,778; of the homes owned by native white families (that is, families having a native white person as head), \$4,766; by foreign-born white families, \$5,576; and by Negro families, \$1,341. One explanation of the higher median value shown for the homes of foreign-born white families lies in the fact that a large majority of these families live in cities where home values are higher than in rural areas, and that

few of them live in Southern States where home values, both urban and rural, are lower than in other parts of the country. Geographic location also explains in large part the low values shown for the homes of Negro families. The median rental for all rented non-farm homes was \$27.15; for homes occupied by native white families, \$27.92; for homes occupied by foreign-born white families, \$33; and for homes occupied by Negro families, \$13.04.

Home-makers.—The home-maker in a family is that woman member who is responsible for the care of the home and family. Home-makers were returned by 28,405,294 families, the remainder being for the most part one-person families (male). Of the total number of home-makers, 3,923,516, or 13.8 per cent, reported a gainful occupation which they followed in addition to their home duties. These gainfully employed home-makers are classified according to type of occupation in the table that follows. Home-makers engaged in agricultural occupations at home consist partly of women operating their own farms and partly of women working on the home farm without definite wages.

GAINFULLY EMPLOYED HOME-MAKERS BY OCCUPATION: 1930

Occupation	Number	Per cent
Total.....	3,923,516	100.0
Employed at home.....	761,435	19.4
Agricultural occupations	396,102	10.1
Other occupations at home.....	365,333	9.3
Employed away from home.....	3,153,758	80.4
Professional workers.....	387,618	9.9
Office workers.....	500,968	12.8
Industrial workers.....	737,044	18.8
Servants, waitresses, etc.	957,963	24.4
Saleswomen.....	271,857	6.9
Other occupations away from home.....	298,308	7.6
Employed, place not specified.....	8,323	0.2

Families Having Radio Sets.—The census tabulations relating to radio sets show the number of families (not including institutions, etc.) having a radio set at the time the census was

POPULATION STATISTICS

taken in April, 1930. The figures, therefore, do not represent the whole number of radio sets in existence or in use at that time, since one family may have two or more sets, and since there are considerable numbers of sets in use in stores and in other commercial and industrial buildings, and in hotels, boarding-houses, and institutions. Of the 29,904,663 families in the United States, 12,048,762, or 40.3 per cent, reported a radio set. Distributed by color and nativity of head of family, 44.4 per cent of the native white families had a radio set; 43.6 per cent of the foreign-born white families; and 7.5 per cent of the Negro families. Of the 17,372,

524 urban families in the United States, 8,682,176, or 50 per cent, had a radio set; of the 6,604,637 rural-farm families, 1,371,073, or 20.8 per cent; of the 5,927,502 rural-nonfarm families, 1,995,513, or 33.7 per cent; and of the total number of farm families (6,668,681), including the small number living in urban territory, 1,399,495, or 21 per cent, had a radio set.

MARRIAGE AND DIVORCE

Data.—Marriage and divorce figures have been compiled for various periods beginning with 1867 and have been published annually beginning with 1922.

MARRIAGES AND DIVORCES: 1922 TO 1931

Year	Population of the United States (estimated as of July 1)	Marriages		Divorces		
		Number	Per 1,000 of population	Number	Per 1,000 of population	Per 100 marriages performed
1931.....	124,070,000	1,060,554	8.55	183,664	1.48	17.3
1930.....	123,191,000	1,126,856	9.15	191,591	1.56	17.0
1929.....	121,526,429	1,232,559	10.14	201,468	1.66	16.3
1928.....	119,861,607	1,182,497	9.87	195,939	1.63	16.6
1927.....	118,196,785	1,201,053	10.16	192,037	1.62	16.0
1926.....	116,531,963	1,202,574	10.32	180,853	1.55	15.0
1925.....	114,867,141	1,188,334	10.35	175,449	1.53	14.8
1924.....	113,202,319	1,184,574	10.46	170,952	1.51	14.4
1923.....	111,537,497	1,229,784	11.03	165,096	1.48	13.4
1922.....	109,872,675	1,134,151	10.32	148,815	1.35	13.1

Classification of Divorces.—The divorces as reported are classified according to cause, party to whom granted, etc. Of the 182,203 divorces granted in 1931 for which detailed information was received, 49,591 were granted to the husband, and 132,612 to the wife. Classified according to cause: 77,225 were granted for cruelty; 50,893 for desertion; 13,661 for adultery; 7,398 for neglect to provide; 2,819 for drunkenness; and 30,207 for other causes and combinations of causes. Of the whole number of divorces, 154,315 were reported as uncontested. Cases where the parties had been married less than five

years formed 36.3 per cent of the divorces, and another 28.5 per cent was made up of cases where the parties had been married from 5 to 9 years. In only 69,319 cases, or 38 per cent of the cases, was it reported that children were affected by the divorce.

Annulments.—In addition to the divorces listed above, there were reported in 1931, 4,339 cases of annulment of marriage, as compared with 4,370 in 1930. More than half of the annulments in both years were reported from two States, New York and California.

XIV. IMMIGRATION AND POPULATION

DIVISION XIV

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

GENERAL

AMERICAN COLONIZATION SOCIETY, 516 Colorado Bldg., Washington, D. C.
CITIES CENSUS COMMITTEE, 200 Fifth Ave., New York City.
CITIZENS' COMMITTEE OF ONE THOUSAND, 100 Fifth Ave., New York City.
LEAGUE OF FOREIGN-BORN CITIZENS, 342 Madison Ave., New York City.
NATIONAL LIBERAL IMMIGRATION LEAGUE, 128 Madison Ave., New York City.
NATURALIZATION AID LEAGUE, 175 E. Broadway, New York City.
NORTH AMERICAN CIVIC LEAGUE FOR IMMIGRANTS, 289 Fourth Ave., New York City.
SCRIPPS FOUNDATION FOR RESEARCH IN POPULATION PROBLEMS, Miami University, Oxford, O.
TRADE UNION IMMIGRATION BUREAU, 201 Second Ave., New York City.

RACES

ALLIED CITIZENS OF AMERICA, INC., 370 Seventh Ave., New York City.
AMERICAN ETHNOLOGICAL SOCIETY, American Museum of Natural History, New York City.
AMERICAN INDIAN DEFENCE ASSN., INC., 221 W. 57th St., New York City.
AMERICAN INDIAN LEAGUE, 24 E. 74th St., New York City.
AMERICAN JEWISH COMMITTEE, 171 Madison Ave., New York City.
AMERICAN JEWISH CONGRESS, 33 W. 42nd St., New York City.
AMERICAN SCANDINAVIAN FOUNDATION, 25 W. 45th St., New York City.
AMERICAN UNION OF ROUMANIAN JEWS, 799 Broadway, New York City.
ANCIENT ORDER OF HIBERNIANS, 937 W. 54th Place, Chicago, Ill.
ASSOCIATION GENERALE DES ALSACIENS-LORRAINS D'AMERIQUE, 46 W. 46th St., New York City.

BAVARIAN NATIONAL ASSN. OF N. A. 758 Broadway, Buffalo, N. Y.
CENTRO-HISPANO-AMERICANO, 353 W. 17th St., New York City.
CENTRO-VASCO-AMERICANO SOCIETY, 481½ Cherry St., New York City.
ENGLISH-SPEAKING UNION OF THE U. S., 19 W. 44th St., New York City.
FEDERATION DE L'ALLIANCE FRANCAISE AUX ETATS UNIS ET AU CANADA, 32 Nassau St., New York City.
FEDERATION OF HUNGARIAN JEWS IN AMERICA, 799 Broadway, New York City.
FEDERATION OF POLISH HEBREWS OF AMERICA, 32 Union Square, New York City.
FEDERATION OF RUSSIAN POLISH HEBREWS OF AMERICA, 1824 Lexington Ave., New York City.
FOREIGN LANGUAGE PUBLISHERS' ASSN. OF THE U. S., INC., 110 E. 42nd St., New York City.
FRANCE-AMERICA SOCIETY, INC., 270 Madison Avenue, New York City.
GENERAL NETHERLANDS ASSN. GROUP OF N. A., 179 S. Trenchard St., Yonkers, N. Y.
HEBREW SHELTERING AND IMMIGRANT AID SOCIETY OF AMERICA, 425 Lafayette St., New York City.
HOLLAND SOCIETY OF N. Y., 90 West Street, New York City.
HUGENOT SOCIETY OF AMERICA, 2 W. 45th St., New York City.
HUNGARIAN SOCIETY OF N. Y., 1440 Broadway, New York City.
INDIAN RIGHTS ASSN., 995 Drexel Building, Philadelphia, Pa.
INTERNATIONAL SERBIAN EDUCATION COMMITTEE, 1049 Park Ave., New York City.
JAPANESE ASSN., INC., 1775 Broadway, New York City.
JEWISH CONGRESS COMMITTEE, 8 W. 40th St., New York City.
JEWISH NATIONAL WORKERS' ALLIANCE OF AMERICA, 189 Second Ave., New York City.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

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| <p>LAKE MOHONK INDIAN CONFERENCE, Smiley, Mohonk Lake, N. Y.</p> <p>LITHUANIAN ALLIANCE OF AMERICA, 307 W. 30th St., New York City.</p> <p>LOYAL SERB SOCIETY SRBADIYA, 443 W. 22nd St., New York City.</p> <p>MEXICAN SOCIETY OF NEW YORK, 16 E. 23rd St., New York City.</p> <p>NATIONAL ASSN. FOR ADVANCEMENT OF COLORED PEOPLE, 69 Fifth Ave., New York City.</p> <p>NATIONAL FEDERATION OF UKRANIAN JEWS OF AMERICA, INC., 505 E. 82nd St., New York City.</p> <p>NATIONAL YOUNG JUDEA, 111 Fifth Ave., New York City.</p> <p>NETHERLAND AMERICAN FOUNDATION, 551 Fifth Ave., New York City.</p> <p>ORDINE FIELI D'ITALIA IN AMERICA, 231 E. 14th St., New York City.</p> <p>POLISH FEDERATION OF NEW YORK CITY, INC., 705 Courtlandt St., New York City.</p> <p>POLISH NATIONAL ALLIANCE, 180 Second Ave., New York City.</p> | <p>RUSSIAN NATIONAL SOCIETY, 5 Columbus Circle, New York City.</p> <p>SONS OF ITALY, 231 E. 14th St., New York City.</p> <p>THESSALIAN SOCIETY, 667 Eighth Ave., New York City.</p> <p>UKRANIAN NATIONAL COMMITTEE OF THE U. S., 30 E. 7th St., New York City.</p> <p>UNITED ROUMANIAN JEWS OF AMERICA, INC., 799 Broadway, New York City.</p> <p>UNIVERSAL NEGRO IMPROVEMENT ASSN. AND AFRICAN COMMISSION LEAGUE, 56 W. 135th St., New York City.</p> <p>YOUNG MEN'S HEBREW ASSN., 31 W. 110th St., New York City.</p> <p>YOUNG WOMEN'S CHRISTIAN ASSOCIATION, 129 East 52nd Street, New York City.</p> <p>ZIONIST ORGANIZATION OF AMERICA, 111 Fifth Ave., New York City.</p> |
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DIVISION XV

SOCIAL PROBLEMS AND CONDITIONS

CRIME CONDITIONS AND TREATMENT

BY BENNET MEAD

STATISTICIAN, UNITED STATES BUREAU OF PRISONS

POLICE STATISTICS

Growth of Area.—The collection and publication of monthly crime statistics received from local police departments was begun in January, 1930, by the Committee on Uniform Crime Records of the International Association of Chief of Police. This work has been carried on since Sept. 1, 1930, by the Bureau of Investigation, U. S. Department of Justice. During 1932, these police statistics have been published quarterly instead of monthly. The area covered has shown a remarkable growth, from an initial area of 399 cities, with about 20,000,000 population, reporting in January, 1930, to 1,352 local units reporting for December, 1931, and 1,450 reporting for September, 1932. Reports for all or part of the first nine months of 1932 were furnished by 1,546 cities, towns and rural townships, having a total population of 52,802,362. The information is especially complete for urban places, covering 81 per cent of the population living in cities and towns of 10,000 or more.

Character of Data.—In spite of strenuous efforts on the part of the U. S. Bureau of Investigation to improve the accuracy of reporting, and

in spite of the cooperation given toward this end by most police departments, it cannot as yet be claimed that these statistics are entirely accurate. None the less, they are of immense value to those concerned with crime and its treatment, since they provide a basis, almost completely lacking before 1930, for estimating the incidence of crime during the current year and the trend of crime from year to year.

Major Offenses.—The following table, based on data from the *Third Quarterly Bulletin* for 1932 on this subject published by the U. S. Bureau of Investigation, shows the relative incidence of certain major offenses for 1931 and 1932. The daily average numbers of offenses, in the cities represented, show increases for four offenses and decreases for the remaining four offenses. Some of these increases and decreases were too slight to be significant; but burglary increased more than 10 per cent; auto theft and criminal homicide by negligence both decreased more than 15 per cent; and assault decreased more than 10 per cent. The last column of the table shows the incidence of the major offenses relative to population, for 1932.

CRIME CONDITIONS AND TREATMENT

MAJOR OFFENSES KNOWN TO THE POLICE *

Offense	Daily average number for 72 cities over 100,000 population		Ratio per 100,000 population for 1,193 cities:
	1931	1932	1932
Criminal homicide:			
Non-negligent	4.0	4.1	5.2
Negligent	3.8	2.9	3.1
Rape	3.3	3.5	4.7
Assault (aggravated)	27.9	24.4	34.1
Robbery	49.5	47.1	78.2
Burglary—breaking and entering	181.6	201.4	287.7
Larceny—theft	392.5	398.7	515.8
Auto theft	232.5	196.1	274.6

* Data cover January to September of each year. "Uniform Crime Reports," Vol. III—No. 3. *Third Quarterly Bulletin*, 1932.

Robbery and Burglary.—The following table, based on carefully selected data for 690 cities reported for the entire period covered by the police statistics, shows the monthly incidence of robberies and burglaries known to the police from January, 1930, to September, 1932. Since at this writing data are not available for the last three months of 1932, averages have been computed covering the first nine months of each year. For robbery, there was a decided increase from 1930 to 1931 but only a slight increase from 1931 to 1932. For burglary, however, there were large increases for both years. For both offenses, the monthly averages declined from January or February until May or June, then rose toward a maximum for the year in December.

ROBBERY AND BURGLARY

(Average daily number of offenses known to police, by months:
January, 1930 to September, 1932*)

Month	Robbery			Burglary		
	1930	1931	1932	1930	1931	1932
January	119.6	126.8	139.1	244.0	308.7	401.9
February	111.2	134.4	122.7	278.2	323.1	391.2
March	95.1	116.2	114.6	275.2	324.2	364.8
April	79.3	107.2	109.5	255.5	309.4	378.0
May	73.7	96.2	99.2	250.2	303.1	349.9
June	72.2	89.4	89.9	238.6	307.5	340.4
July	76.1	96.2	100.0	250.4	316.7	355.2
August	86.1	104.0	100.7	257.7	339.6	363.7
September	90.2	106.8	109.7	267.7	331.6	366.6
October	98.2	113.4	.....	257.9	335.2	.....
November	120.3	131.2	.....	299.0	376.6	.....
December	138.5	157.8	.....	311.0	396.5	.....
January to September	89.1	108.4	109.5	257.3	318.2	367.9

* Based on unpublished data for 690 cities reported for entire period, which were basis of charts in "Uniform Crime Reports," Vol. III—No. 3. *Third Quarterly Bulletin*, 1932. Data furnished by courtesy of J. Edgar Hoover, Director of the U. S. Bureau of Investigation.

The table (p. 536) shows crime rates for the major offenses against property in six different groups of cities. These figures show a marked tendency toward higher crime rates, as the size of cities increases.

XV. SOCIAL PROBLEMS AND CONDITIONS

CRIME RATES BY SIZE OF CITY

(Ratio per 100,000 population of principal offenses known to the police
by class of City: January to September, 1932*)

Class of City	Robbery	Burglary	Larceny	Auto Theft
Cities having population of—				
250,000 or more.....	121.3	321.7	531.5	371.4
100,000-249,999.....	56.4	332.5	600.0	292.1
50,000- 99,999.....	56.1	268.6	557.9	230.6
25,000- 49,999.....	42.6	249.3	506.4	187.8
10,000- 24,999.....	29.0	206.0	416.4	127.6
Under 10,000.....	29.8	210.2	348.2	89.6
Total.....	78.2	287.7	515.8	274.6

* Based on data for 1,193 cities, with a total population of 45,900,731, nearly 46 million in "Uniform Crime Reports," Vol. III—No. 3. *Third Quarterly Bulletin*, 1932.

Strength of Police Forces.—The above figures should not be interpreted as showing the true incidence of these offenses. It seems probable that the relative number of police officers would influence the number of offenses known to the police. If so, the variations noted may be largely accounted for by the fact that the ratio of police employees to population increases as the cities become larger. The official statistics of the U. S. Bureau of Investigation show for the year 1930 the following average numbers of police department employees per 1,000 population:

Size of City	Employees per 1,000 population
250,000 or more.....	2.14
100,000-249,999.....	1.51
50,000- 99,999.....	1.38
25,000- 49,999.....	1.27
10,000- 24,999.....	1.10

Clearances.—The following table compares the number of major offenses known to the police with the number of "clearances" and the number of persons charged with offenses

during 1931. A "clearance," as the term is here used, is defined as an offense known to the police which is "cleared" by the arrest of one or more offenders. It is apparent that in this sense, the arrest of a single offender may "clear" a number of different offenses. Statistics of "clearances," if accurately compiled, measure roughly the maximum degree of success of the police in dealing with crime. It is to be noted that the percentage of offenses "cleared" by arrest is decidedly larger for the four offenses against persons than for the principal offenses against property.

Persons Charged.—The last column of the table shows the number of persons charged with offenses, which, it will be noted, is appreciably larger than the number of "clearances" for most of the offense groups. This is no doubt a result in part of the facts that two or more persons are frequently involved in a given offense, and that the police may arrest several persons while investigating a given offense, which may have been committed by a single person.

MAJOR OFFENSES, CLEARANCES, AND PERSONS CHARGED: 1931*

Offense	Offenses known	Offenses Cleared by Arrest		Persons charged with offenses
		Number	Per cent of total known	
Criminal Homicide:				
Non-negligent.....	1,145	892	77.9	1,003
Negligent.....	711	643	90.4	709

* Based upon annual reports for 511 cities, having a total population of 16,458,401. "Uniform Crime Reports," Vol. III—No. 2, *Second Quarterly Bulletin*, 1932.

CRIME CONDITIONS AND TREATMENT

Offense	Offenses known	Offenses Cleared by Arrest		Persons charged with offenses
		Number	Per cent of total known	
Rape.....	904	795	87.9	1,051
Assault (aggravated).....	7,264	5,337	73.5	5,592
Robbery.....	13,055	4,828	37.0	5,071
Burglary—breaking and entering.....	51,607	14,516	28.1	12,893
Larceny—theft.....	122,911	31,698	25.8	31,831
Auto theft.....	54,637	7,767	14.2	6,807

HOMICIDE

It is estimated that there were about 11,000 deaths from homicide in the entire United States during 1930. This estimate is based upon census mortality statistics for the death registration area, which now covers all of the states except Texas, and includes over 96 per cent of the population of the country. The homicide death rate in 1930 was 9.0 per 100,000 population. This represents an appreciable increase over the rate of 8.4 for 1929.

STATISTICS OF PRISONERS

Annual Census.—A combined two-year report, entitled "Prisoners in State and Federal Prisons and Reformatories: 1929-1930," was issued late in 1931 by the U. S. Census Bureau. It is estimated from figures in this report that the population of all state and Federal prisons and reformatories was about 135,000 on Jan. 1, 1931, and had increased to nearly 150,000 by Jan. 1, 1933. It is also estimated that the number of prisoners received from the courts by these institutions was about 69,000 during 1930, and increased to nearly 80,000 for 1932. This report contains some interesting new data, especially statistics of legal executions.

Decennial Census Plans.—For 1933, the Census Bureau plans to collect statistics (as in 1923) for jails, work-houses and other county and city correctional institutions. Additional types of statistics to be collected cover persons under parole supervision and those granted executive clemency, or pardon and commutation.

JUDICIAL STATISTICS

Institute of Law Studies.—During

the past year the Institute of Law of Johns Hopkins University has continued its research work in the field of Judicial Statistics. The Institute has compiled and published detailed comparable data for Ohio and Maryland in 1930, showing the volume of work, procedural outcomes, and forms of treatment, with classification by offense and by geographic units. For 1931, the Institute succeeded in securing and publishing similar data for six states, including Delaware, Iowa, New Jersey and Rhode Island, as well as Maryland and Ohio. If present plans are carried out, similar statistics for 1932 will be published covering a still larger area.

Census Plans.—The U. S. Census Bureau is planning to include Judicial statistics in connection with the 1933 decennial census of prisoners, probably similar to those which have been compiled by the Institute of Law for 1930, 1931, and 1932. But it is hoped that a considerably larger area may be covered.

Other Studies.—Significant research work in the field of Judicial statistics is also being done by other research agencies, notably by the Institute of Criminology of the Harvard Law School, by the Yale Law School, and by the Bureau of Public Administration of the University of California.

OTHER RESEARCH

Social Trends in Crime and Punishment.—Under this title, Professors E. H. Sutherland and C. E. Gehlke contributed to the report of the President's Research Committee on Social Trends a historical review of the fluctuations in a number of indices of crime and its treatment. Publication early in 1933 is expected.

XV. SOCIAL PROBLEMS AND CONDITIONS

Case Studies.—Increased emphasis is being placed on the case study method, in numerous research projects which have been recently conducted in the field of criminology and delinquency. Some outstanding examples are studies of prisoners by public administrative agencies and universities, in Illinois, Massachusetts, Michigan, New York, New Jersey, Pennsylvania, and in the Federal system; studies of paroles in Illinois, Massachusetts, and New York; studies of probation in Boston and New York City, and studies of young offenders in a number of states by the U. S. Childrens Bureau, and by the New York Crime Commission and the Illinois Institute for Juvenile Research.

Prediction of Outcomes.—Significant contributions toward the further development of methods for predicting the outcome of parole, institutional treatment, and probation, have been made during the past year by George B. Vold (in Massachusetts and

Minnesota), Sheldon and Eleanor Glueck (Mass.), E. A. Conover, S. A. Stouffer, and C. H. Young (Illinois), and E. D. Monachesi in Minneapolis and St. Paul.

Delinquency Areas.—Additional studies of Juvenile delinquency areas in other cities like the Chicago study, have been published by Clifford Shaw and associates. A study of adult delinquency areas in Indianapolis has been issued by R. Clyde White. Similar studies are in progress elsewhere.

Scientific Crime Detection.—Much significant research in the use of scientific instruments and laboratory methods for crime detection has been carried on by the Scientific Crime Detection Laboratory of Northwestern University and other agencies. Further experimentation has been done with the "lie detector" devised by J. A. Larson; and methods are being developed for the analysis of hair, fibres, blood and other material clues, and for the microscopic identification of bullets and firearms.

PRISONS AND PENAL CONDITIONS

BY WILLIAM B. COX

EXECUTIVE SECRETARY, THE OSBORNE ASSOCIATION

PRISON ADMINISTRATION

The years 1929 and 1930 were marked by an unparalleled number of prison outbreaks which have continued to a very much lesser degree during 1932. Although disastrous in themselves, these disturbances served to call attention to the futility of administering prisons on a purely custodial and punitive level. A changed attitude on the part of most prison administrators was the significant characteristic of 1932. As a group, those responsible for the conduct of penal institutions became aware of the dangers of the old repressive methods and became receptive to new ideas.

PRISON REFORM MEASURES

Rehabilitation.—The year 1932 showed a continuing interest in and growing appreciation of the necessity

of rehabilitative measures. The practical penologist has joined with the so-called 'reformer' in seeking treatment and re-education rather than revenge in dealing with offenders against the law.

Modern developments in prison architecture exemplify this change. The new Federal Penitentiary at Lewisburg, Pa., the New York State Medium Security Prison at Walkill, the Massachusetts State Prison Colony at Norfolk, the New Jersey Reformatory at Annandale, and the new Intermediate Reformatory at Jeffersonville, Mo., have definitely broken with the bastille tradition and are designed to permit individualized treatment.

Medical Treatment.—Along with improvements in construction and mechanical equipment has come a greater use of professional services. Classification and case work are now re-

PRISONS AND PENAL CONDITIONS

garded as fundamental requisites in the penal programs of the more progressive states. In the field of medicine an aggressive program of treatment and corrective surgery is replacing the routine attention to acute conditions. The Federal Government by placing the entire medical program of their institutions in the hands of the U. S. Public Health Service has definitely provided for more intensive medical treatment.

Education.—There has also been an increasing recognition of the value of academic and vocational education organized along lines suggested by modern research in the field of adult education. The Federal institutions; and the reformatories at Elmira, New York; and Huntingdon, Pa. are among those which have made a radical departure from the traditional practices of institution schools. The undertaking of more advanced educational projects in the State Prisons at Waupun, Wis., Dannemora, N. Y., Baltimore and other similar institutions indicate the extent to which the importance of this aspect of correctional treatment is now acknowledged.

Personnel Training.—Educational development has not been entirely devoted to caring for the inmates; personnel training has also played its part. Harvard University has established a School for Prison Administrators, while the Federal Government and several states, notably, New Jersey, New York and Maryland, have continued their schools and require a systematic training for prison guards.

Parole Reorganization.—The proper status of parole as an integral part of correctional treatment, rather than as an act of clemency, is becoming generally recognized. The parole systems of the Federal Government and New York and Ohio, among others, have been reorganized in recognition of this principle, although there is still no system in the country maintaining the adequate supervision required to insure the full benefits of parole.

INFLUENCES OF THE DEPRESSION

Retrenchment in Penal Institutions.

—On the other hand these new and

constructive administrative practices are faced with a serious threat resulting from the necessity of curtailing expenses in government functions due to the general economic depression. At the very time that those responsible for the conduct of penal institutions have become convinced of the practical value of constructive rehabilitative measures, legislators and the public at large are showing a strong tendency to revert to a purely custodial level. While it is unquestionably true that the times demand governmental retrenchment, it would be unfortunate if the ground gained as a result of the catastrophes in 1929 and 1930 is lost because of a failure to recognize that purely custodial care is the most expensive service which a state can bestow upon its wards.

Opposition to Convict Labor.—Prison labor has been particularly affected by this tendency. Many states have passed prohibitory legislation while others have adopted temporary policies curtailing the use of convict labor. The Federal Government, in passing a law which denied Federal aid to state roadbuilding projects employing convict labor, dealt a serious blow to one of the most practicable outlets for prison labor. The result of using radical methods to decrease the competition of prison labor with free labor in times of widespread unemployment is likely to result in a situation of far-reaching serious consequences. Depriving prisoners of an opportunity to work not only adds greatly to the cost of maintaining penal institutions and destroys one of the most effective agencies of rehabilitation, but it also, by creating idleness, increases the likelihood of riots and other disturbances with their attendant destruction of property and loss of life.

POLITICAL FACTORS

Many political upheavals during 1932 forcibly call attention to the fact that our penal institutions continue to be largely dominated by politics. Election results in many states have brought about sweeping changes in personnel and policies which are sure to have an influence on the conduct

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of prisons. The fact must be squarely faced that no permanent improvement in our methods of handling anti-social individuals can be expected so long as the management of penal institutions is subject to direct political influence. The continued domination of politics in the affairs of prisons and reformatories is still the greatest obstacle to the ultimate solution of an important social problem.

REFORM IN PRISON CAMPS

Special attention has been focused upon conditions in southern prison camps, more commonly known as "chain gangs," especially those of Florida and Georgia, because of disclosures of the Maillfert case in Florida, and the Burns case in Georgia. The use of such antiquated and barbarous devices as sweat-boxes, stocks and chains has created an aroused public opinion which demands the elimination of such cruel and unnecessary punishments. Other southern states, notably Virginia, Alabama and North Carolina, have already eliminated many of the brutalities characteristic of the Georgia and Florida systems. These states have benefitted by the improved morale in the camps and it is significant to observe that their roadbuilding programs have been improved rather than suffered through the adoption of humane practices.

MASSACHUSETTS STATE PRISON COLONY

Rehabilitation Program.—The most important and interesting experiment in the institutional care of offenders has been undertaken at the Massachusetts State Prison Colony at Norfolk. Under the leadership of the Superintendent, Howard Gill, the Colony is carrying out present-day theories of rehabilitative treatment to a degree not found anywhere else in the country. If this program is continued, classification, physical and mental rehabilitation, individualized programs,

education, vocational training, religious and moral instruction, constructive discipline, recreation, and social case work will all be used to the fullest extent.

Classification and Case Work.—It is too early to attempt an evaluation of the operation of the Norfolk plan of classification and case work. It can be safely said that it has been most carefully thought out and broadly conceived. In two respects it is superior to any of the programs now in operation. The Norfolk plan not only provides for the use of case studies in dealing with the individual inmate, but it also recognizes and attempts to meet the case work problems presented by the prisoner-and-his-family, both during the period of imprisonment and while on parole. It also provides, through the House Officers, the close and continuing supervision and guidance which is so necessary for effective social rehabilitation. The present program will be greatly strengthened by the addition of psychological and psychiatric facilities.

Recreation.—The developments to date in education, recreation and entertainment indicate that excellent work will be done in these three important fields. The constructive entertainment program, the unusually extensive use of supervised correspondence courses and the sound vocational training already compare favorably with the better efforts along these lines.

Community Committees.—The plan of the Colony also includes the development of a community program built around the Staff and the Inmate Council which work through joint committees for construction, education, athletics, maintenance, library, etc. The aim of this program is to help each inmate to develop individually and socially so that he will return to society better equipped for community living.

SOCIALISM

BY NATHAN FINE

EDITOR, *American Labor Year Book*

PRESIDENTIAL VOTE
Gain over 1928.—The total official

vote of the Socialist Party in 1932 will run over 900,000, about the same

figure reached in 1920 and 1912, the peak years in the Socialist strength in the United States. The percentages of the total vote, however, were greater in 1920 and 1912. The party secured 5.9 per cent of the total cast in the year that Woodrow Wilson was elected for the first time. As compared with the poll in 1928, however, the 1932 vote marks a great advance, and what is more to the point, puts the Socialist Party once more on its feet.

Handicaps.—It is true of course that Socialists and non-Socialists expected a much better showing in the third year of a devastating depression. Some of the reasons why the vote was not greater were: (1) the reputed progressivism of Franklin D. Roosevelt; (2) the intensity of the dislike for Herbert Hoover and the fear in the last stages of the campaign that he might be re-elected; (3) the weakness of the Socialist Party organization and the smallness of the campaign fund; and (4) the non-Socialist outlook or ideology of the organized and unorganized workers and farmers of America.

The Roosevelt Factor.—On the first point, the presence of Roosevelt, it will be remembered that when William Jennings Bryan was a candidate for president in 1908, he was partly responsible for keeping the Socialist Party poll down to its 1904 level, despite one of the most energetic and costly campaigns waged by the followers of Eugene Victor Debs. In 1924 and in 1904, on the other hand, when the Democratic Party nominated outstanding conservatives,—John W. Davis and Alton B. Parker—the radical and labor coalition behind Robert M. LaFollette in 1924 and the Socialist Party in 1904 were the gainers. Franklin D. Roosevelt had and still has the reputation of being a progressive, and this fact cut into the Socialist vote. Moreover, the president-elect was quite acceptable to those who had grown to dislike Hoover. The intensity of that dislike—at the close of the campaign especially—affected the Socialist poll. A considerable number would at any time have cast their votes for Nor-

man Thomas and James H. Maurer, the Socialist candidates, if they had been certain that Hoover was going to be defeated without their ballots. But in the last few weeks before the election, with the president making inroads because of his strenuous campaigning, many—including among them those who had decided to vote for Thomas and Maurer—rushed to support Roosevelt to insure the defeat of Hoover. This stampede hurt the Socialist nominees.

Campaign Aspects.—The Socialist Party entered the campaign with a woefully weak organization. It had but 10,000 members—compared with 118,045 in 1912—mostly concentrated in a half dozen states. For a nationwide election it spent about \$50,000, a ridiculously small sum. It could afford only \$9,000 for radio broadcasting. In the light of this limited manpower, inadequate funds and scanty organization, the size of the vote was really impressive. Finally, while it is true that the depression has deepened and lasted for three years, the American workers have a long tradition of individualism behind them and have not yet given up hope of a return of the good old days of prosperity. They have not, in other words, completely forgotten the boom periods. The American Federation of Labor has taken a number of very significant forward steps—the declaration for compulsory state unemployment insurance, the militant fight for the six-hour day—but it has not yet come out for independent political action, much less for the Socialist Party. The masses of the workers and farmers supported Roosevelt and the Democratic Party to secure immediate relief. If the Democratic administration does not “deliver the goods,” and if present economic conditions do not become very much better, the Socialist Party ought to make large and rapid gains among the toilers and dirt farmers.

Organization and Morale.—From the standpoint of organization and morale, the Socialist Party has emerged from the 1932 campaign in a very satisfactory way. In ten months it added 600 new locals and

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branches and 6,000 members. It doubled the circulation of its English and foreign language publications and made its influence felt as in no year since the war.

Results in the States.—By devious technicalities the party was not permitted to be officially on the ballot in 1932 in Florida, Idaho, Louisiana, Nevada, and Oklahoma. Nevertheless, it received a number—in Oklahoma a very large number—of written-in votes in these states. It did not elect

any congressmen, although in Pennsylvania and Wisconsin it re-elected a number of state legislators. The vote by states in 1912, 1920, 1928 and 1932 is given in a separate table. It shows that the party has re-established itself in 1932 in the industrial states. In pre-war days one out of ten voters was a dues-paying member of the Socialist Party. If it can repeat this performance again it can build up a powerful organization in the next few years.

SOCIALIST PARTY VOTE *

State	1912	1920	1928	1932
Alabama.....	3,029	2,369	460	2,030
Arizona.....	3,163	222	.....	2,618
Arkansas.....	8,153	5,111	429	1,269
California.....	79,201	64,076	19,595	63,299
Colorado.....	16,418	8,046	3,472	13,591
Connecticut.....	10,056	10,350	3,026	20,439
Delaware.....	556	988	329	1,376
Florida.....	4,806	5,189	4,036	879
Georgia.....	1,026	465	124	461
Idaho.....	11,960	38	1,293	526
Illinois.....	81,278	74,747	19,138	67,258
Indiana.....	36,931	24,703	3,871	21,388
Iowa.....	16,967	16,981	2,960	20,467
Kansas.....	26,779	15,511	6,205	18,276
Kentucky.....	11,647	6,409	832	3,853
Louisiana.....	5,249	.....	837	533
Maine.....	2,541	2,214	1,063	2,432
Maryland.....	3,996	8,876	1,701	10,489
Massachusetts.....	12,616	32,269	6,262	34,305
Michigan.....	23,211	28,947	3,516	39,325
Minnesota.....	27,505	56,106	6,774	25,476
Mississippi.....	2,061	1,639	263	675
Missouri.....	28,446	20,242	3,739	13,301
Montana.....	10,885	.....	1,667	7,896
Nebraska.....	10,174	9,600	3,434	9,876
Nevada.....	3,313	1,864	.....	.....
New Hampshire.....	1,980	1,234	455	947
New Jersey.....	15,900	27,385	4,866	42,998
New Mexico.....	2,859	.....	156	1,640
New York.....	63,381	203,201	107,332	177,397
North Carolina.....	117	446	.....	5,599
North Dakota.....	6,966	8,282	842	1,855
Ohio.....	90,144	57,147	8,683	64,094
Oklahoma.....	41,674	25,726	3,924	17,896
Oregon.....	13,343	9,801	2,720	15,450
Pennsylvania.....	80,915	70,021	18,647	91,119
Rhode Island.....	2,049	4,351	.....	2,306
South Carolina.....	164	28	47	82
South Dakota.....	4,662	.....	443	1,445
Tennessee.....	3,492	2,268	631	1,736
Texas.....	24,896	8,121	722	4,450
Utah.....	9,023	3,159	954	4,067
Vermont.....	928	.....	.....	1,533
Virginia.....	820	807	250	2,382
Washington.....	40,134	8,913	2,615	20,574
West Virginia.....	15,336	5,618	1,305	4,119
Wisconsin.....	33,481	85,041	18,213	53,379
Wyoming.....	2,760	1,288	788	2,829
Total.....	897,011	919,799	268,624	899,935

* Complete official and unofficial returns as of December 15, 1932.

MILWAUKEE CONVENTION

Opposing Views and Groups.—The party's national convention, held in May, 1932, at Milwaukee, was noteworthy in a number of respects. It was the first convention in over a decade where the life of the movement was indicated by the sharpness of opposing views and groups. The lineup was essentially that of the center, led by the pioneers of the party, against the right—Norman Thomas and Daniel W. Hoan and their followers—united with the left—the militants, the younger members by and large. The fight revolved around the attitude of the party toward Soviet Russia, the relations with the unions, the naming of the national chairman, and the election of the members of the national executive committee.

Soviet Resolution.—Paul Blanshard introduced and Norman Thomas amended the resolution which was carried on Soviet Russia, by a roll call vote of 8,735 to 3,928:

"Whereas, the Socialist Party recognizes that the Soviet experiment is being watched closely and with intense interest by the workers; that its success in the economic field will give an immense impetus to the acceptance of Socialism by the workers, while its failure will discredit an economy based upon planned production and the abolition of Capitalism.

"Be it Resolved, therefore, that the Socialist Party, while not endorsing all the policies of the Soviet government, and while emphatically urging the release of political prisoners and the restoration of liberty, endorses the efforts being made in Russia to create the economic foundations of a Socialist society and calls on the workers to guard against Capitalist attacks on Soviet Russia. We believe that economic and political conditions in each country should determine the revolutionary tactics adopted in that country, and that the Russian experiment is a natural outgrowth of the conditions peculiar to that country."

The trade union resolution of the agenda committee was opposed by a substitute of the militants. The forces of the right-left group dissolved on this question because of the presence

of a number of old trade unionists in the Wisconsin and other right-wing delegations. The lefts could only muster 62 against 82 for the time-honored policy of the party toward the unions, since the split with the Socialist Labor Party in 1899, after the latter had organized the dual federation, the Socialist Trade and Labor Alliance.

Hillquit Elected Chairman.—The effort to defeat Morris Hillquit as national chairman and elect Mayor Daniel W. Hoan of Milwaukee in his place occupied the attention of the delegates between and during sessions practically from the opening to the close of the convention, and evoked one of the bitterest debates. The roll call showed a vote of 7,526 to 6,984 in favor of Hillquit. For months after the convention the aftermath of this battle affected the membership. The necessities of the campaign eliminated most of the ill feeling, but not the differences in viewpoint, which have always existed in the Socialist Party, between the rights, the center, and the lefts.

Executive Committee.—The newly elected executive committee leans slightly to the right-left combination of the Milwaukee convention. The committee consists of the chairman of the party, Morris Hillquit (New York); Norman Thomas (New York); Daniel W. Hoan (Wisconsin); Leo Krzycki (Wisconsin); Jasper McLevy (Connecticut); James D. Graham (Montana); Powers Hapgood (Indiana); Darlington Hoopes (Pennsylvania); Lilith M. Wilson (Pennsylvania); Albert Sprague Coolidge (Massachusetts); and John C. Packard (California). The alternates are Al Benson of Wisconsin, Paul Blanshard of New York, John M. Collins of Illinois, James Oneal of New York, and Herman F. Neissner of New Jersey.

GENERAL

Journals.—During the campaign the party issued a little paper, *America for All*, which averaged about 65,000 copies weekly, mostly in bundle orders, but discontinued it immediately after the election. Several publications were added during the

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year. *The World Tomorrow* changed from a monthly to a weekly in the fall and declared its complete dedication to the cause of Socialism. A Marxian journal appeared in January, the *American Socialist Quarterly*, of which four issues were published in 1932.

Rand School Course.—The Rand School of Social Science, toward the close of the year, began a correspondence course in Scientific Socialism, which was being taken by the members of dozens of locals, a fact reminiscent of pre-war days when hundreds of classes were being conducted.

The League for Industrial Democracy was the national headquarters for the independent Committee for Thomas and Maurer during the campaign. This Committee reached a membership of 10,000. The League had one of its busiest years in 1932.

New York Mayorality Vote.—The New York City Socialists nominated Morris Hillquit as their candidate for mayor in the special election made necessary by the resignation of James J. Walker. The official vote showed

that Norman Thomas, for president, received 122,565, while Hillquit got 249,887 in the city.

SOCIALIST LABOR PARTY

The oldest Socialist organization—founded in 1877—of which the present Socialist Party is an outgrowth, held its convention in May, 1932, in New York City. The Socialist Labor Party delegates nominated Verne L. Reynolds for president, and John W. Aiken for vice-president. They re-elected Arnold Petersen secretary, and Olive M. Johnson editor of the official organ, the *Weekly People*. In nine states, for which official returns are available, the Socialist Labor Party polled the following vote (1920 and 1928 added for comparison):

State	1920	1928	1932
Kentucky.....	.....	340	1,396
Maine.....	.....	.....	225
Maryland.....	1,178	906	1,036
Massachusetts.....	3,583	773	2,668
Minnesota.....	5,828	1,921	770
New Jersey.....	923	500	1,062
New York.....	4,841	4,211	10,339
Ohio.....	.....	1,515	1,968
Oregon.....	1,515	1,564	1,730

ORGANIZED SOCIAL WORK

BY WALTER M. WEST

EXECUTIVE SECRETARY, AMERICAN ASSOCIATION OF SOCIAL WORKERS

RELIEF BURDEN IN THE DEPRESSION

Agencies Overtasked.—The third year of business depression disclosed a need for relief beyond any previous experience of social work. Existing agencies have been overwhelmed, and although cities, states, and the Federal Government have appropriated a vast total in relief funds, all resources, public and private, have been unequal to the unprecedented task.

Relief Expenditures.—During 1932, the huge numbers of the unemployed increased, and each month, new thousands were added to the relief rolls because their incomes had stopped or because after months and years of unemployment, all resources

had become exhausted. Although there are no reports available showing either the total amount of relief dispensed by all organizations, or the number of families receiving relief, the figures which are available are staggering. During the month of August, when relief is normally at a low for the year, 960 agencies in but 120 cities of the country reported relief expenditures of about \$22,500,000. This was an increase of 102 per cent over August, 1931. These reports, collected and compiled by the Children's Bureau of the Department of Labor, give some indication of the falling standards of relief, as they reveal that the number receiving relief is increasing faster than the amount spent. In 125

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cities in August, 748 agencies (less than the total reporting relief) served 731,000 families, as compared to 333,000 in the same month of 1931.

Total Relief Bill.—As the figures for these 125 cities include only regularly established agencies and do not include large amounts which are given through unorganized channels, it is clear that the total relief bill for the year 1932 will run into enormous proportions. It has been estimated that direct relief alone will amount to over \$1,000,000,000 this year. If the various artificially created work projects for the benefit of the unemployed are added, the total figure will be \$2,000,000,000 and possibly \$3,000,000,000. The number of families receiving aid will probably reach several million. It is known that in some cities the number of those aided represent a sixth or even a fifth of the population.

ADMINISTRATION OF RELIEF FUNDS

Responsibility for administration of relief funds has been carried, until this year, largely by regularly constituted welfare departments in city governments and by voluntary agencies. These agencies have been rapidly expanded to meet the need and in many of the larger cities, emergency organizations have been established in addition. In normal times, relief has been given by the regular agencies in connection with a program of social rehabilitation in which case work with the individual client was the accepted procedure. The mass problem which has descended on social agencies because of unemployment has changed the nature of most of the work to a mass feeding program. In many places, because of scarcity of funds, relief doles have been standardized in the form of commissary supplies worth a few cents a day per person, with no relief obtainable for payment of rents or for any of the other needs of a family.

GOVERNMENT APPROPRIATIONS

State appropriations have been made in a number of states to sup-

port the relief efforts of local communities. Twelve states—California, Illinois, Maryland, New Hampshire, New Jersey, New York, Ohio, Oklahoma, Pennsylvania, Rhode Island and Wisconsin—have passed some form of state aid for unemployment relief during the past two years. Special commissions have been appointed, with appropriations as high as \$25,000,000, to supplement and stimulate local programs. In the election in the fall of 1932 several states voted large bond issues to finance continued emergency programs.

Bills in Congress.—When Congress met in December of 1931, Senators Costigan of Colorado and LaFollette of Wisconsin presented similar bills, later combined, proposing the establishment of a temporary emergency relief board with power to make grants to states for relief to be administered by state and local authorities. Social workers, in close touch with the mounting needs for relief and the increasing difficulties of supplying sufficient funds from local taxation or private philanthropy, supplied the main testimony in support of the bill. After several weeks of debate, the bill was defeated by a very small margin in the Senate, although opposed by the party organization and the administration.

R. F. C. Loans.—Evidence of the unmet needs continued to accumulate from other sources, and when Senator Costigan moved to introduce another measure early in May, the Democratic organizations in the Senate and House announced a program of Federal relief, and this was quickly followed by a similar program from the White House. A bill which was a compromise between the Administration and the Democratic measures was finally passed in July, giving additional authorization to the Reconstruction Finance Corporation. Instead of grants-in-aid, as planned in the earlier proposal, the Relief and Construction Act of 1932 provided that the Corporation could make loans to the states out of a

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\$300,000,000 fund. To the middle of October the Reconstruction Finance Corporation had made loans to states under the terms of the Act amounting to over \$42,700,000.

WELFARE AND RELIEF MOBILIZATION

Community Chests. — Meanwhile, social agencies were making strenuous efforts to maintain their full programs of child care, health activities, recreation and other activities. Need for all these services as well as for relief was greatly increased but the agencies could barely hold their own under the universal pressure of obtaining sufficient relief funds. In spite of heavy losses in income suffered by those who contributed to private social agencies, the community chests raised a total of over \$101,000,000 as compared with \$83,000,000 in 1931 which was the previous high record.

Baker Committee.—In September, 1932, several hundred leaders in community chests throughout the country launched a second Welfare and Relief Mobilization with Newton D. Baker as head of a large national committee of sponsors. Through national broadcasting and magazine advertising, this group aims to assist the local city chests to raise money for the support of varied social work programs for the coming year. The enterprise had the whole-hearted support of President Hoover who opened the conference with a strong endorsement.

COST AND VOLUME OF SOCIAL WORK

Tabulating Reports.—Because social work began as a community effort sponsored by small groups of interested individuals, or as a local service by a local government, nation-wide data on the services rendered by social agencies and the costs of such services have been lacking. Forced by the events of the past few years to realize that they were dealing with parts of a vast national problem, social agencies have been making efforts to compile data from their experience. The

lead was taken by the Russell Sage Foundation which for several years has been collecting and tabulating reports from the relief-giving agencies in the large cities of the country. This was followed by a project organized by the University of Chicago and the Association of Community Chests and Councils to collect data on the cost and volume of social work. The latter compilation was taken over in 1931 by the Federal Children's Bureau. In January, 1932, the Russell Sage Foundation also turned its project over to the Bureau, with Dr. Ralph G. Hurlin, who had been in charge of the Foundation's study, acting as advisor.

Children's Bureau Studies. — During the year the Children's Bureau has combined these series of reports, and now receives data from a larger number of cities than before. It has also started a series of reports on trends in foster home and institutional care of children. Additional studies of this nature are needed for an understanding of the extent of the national problems with which social agencies are dealing.

THE PROBLEM OF THE MIGRANT

Transient Families.—The problem of transient families which has been increasing in size during the last decade, largely as a result of cheap automobile transportation, has been greatly augmented by the depression. To avoid the expense of supporting these migrants, it is the practice of local communities to furnish means for getting them to the next town, where they are again passed on.

Vagrant Boys. — Present conditions are responsible for a new group among these transients, for the Children's Bureau discovered, in a study made by Dr. A. W. McMillan, that young boys to the number of about 200,000 are wandering about the country, getting their transportation largely by riding freights. Out of school, out of work, and no longer welcome in homes which are now destitute,

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these lads, and some girls, are adding to the transient problem of most cities.

NEW PUBLIC WELFARE AGENCIES

Due to the necessity for setting up emergency relief programs in many cities and to the inability of voluntary agencies to meet the relief needs while carrying on their other necessary programs, the development of new public welfare agencies has been given stimulus. Organized social work, with a few exceptions, has been confined to cities, but the needs in rural and small city areas arising from the depression has speeded up the development in several states of county organizations staffed with social workers.

PERSONAL STANDARDS

The increase of social work personnel in state and local welfare departments in turn has stimulated activity in connection with the standards set up for the selection of personnel. While there have not been enough well-trained social workers to fill all the emergency positions which have developed, they have been in demand to fill executive and supervisory positions. Much attention is being paid by social workers, through their organizations, to civil service requirements, and to the extension of the merit systems of selecting personnel. In the belief that minimum standards of personnel can be set up effectively by the states for social work as for other professional occupations, the American Association of Social Workers, the American Public Welfare Association, and other organizations are promoting certification measures, hoping for the enactment of state laws in a number of states in the near future.

NATIONAL CONFERENCE OF SOCIAL WORK

In the year which saw the social forces of the nation overwhelmed by the staggering unemployment problem, which saw the need for revised programs, and new methods, and even the necessity for new goals, the National Conference of Social

Work held in Philadelphia in May provided an opportunity for the 4,000 social workers and laymen who attended to participate in technical discussions and general expositions on social methods and social problems. Frank J. Bruno, head of the George Warren Brown Department of Social Work in Washington University, St. Louis, was elected President for 1932-33, and Detroit was selected as the meeting place for next year.

INTERNATIONAL CONFERENCE OF SOCIAL WORK

The second international Conference of Social Work was held in Frankfort, Germany, in July. Dr. Alice Masarykova of Czechoslovakia, the President, welcomed a thousand delegates from thirty-one countries in Europe, America, and Asia. "The Family" was the general theme, and commissions in several countries brought in summaries of their activities in connection with health, economic problems, social insurance, and broken families. The meeting ended with the expectation of the delegations from the various countries that a third conference would be held in 1936.

SOCIAL WORKERS IN FEDERAL CENSUS

Announcement was made in June, 1932, of the count made of social workers in the Federal Occupational Census of 1930. This was the first time that social workers had been given a professional rating in the Federal Census, and that practically all the major divisions within the general field were listed under one title. The Census found 31,243 social workers employed throughout the country, New York State leading with 5,748 and Nevada trailing with 7. Of the total, 24,592 were women, and 6,649 men.

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HOUSING PROGRESS

BY GEORGE GOVE

SECRETARY, NEW YORK STATE BOARD OF HOUSING

LEGISLATION

Emergency Relief and Construction Act.—The outstanding event in the field of low cost housing during the past year was the passage by Congress, in the Emergency Relief and Construction Act, of a provision authorizing the Reconstruction Finance Corporation "to make loans to corporations formed wholly for the purpose of providing housing for families of low income, or for reconstruction of slum areas, which are regulated by state or municipal law as to rents, charges, capital structure, rate or return, and areas and methods of operation, to aid in financing projects undertaken by such corporations which are self-liquidating in character." This sub-section was included in the statute as the result of the efforts of the New York State Board of Housing. When the Act was adopted in July, that Board had before it applications for approval of several desirable housing projects, all of which had been held up by failure to obtain mortgage loans. The general paralysis of credit had caused the practical cessation of all residential construction.

In the meantime, the continued success of the projects operating under the New York Housing Law, and all the other publicly undertaken low rent housing projects throughout the country, gave assurance that such projects could be made truly self-liquidating so as to deserve a place in the Federal construction program.

Qualifying for R. F. C. Loans.—When the Federal act was passed, New York was the only state having a Housing Law under which corporations are so regulated that they could qualify for loans from the Reconstruction Finance Corporation. A movement immediately got under way to have similar statutes passed in other states. The Committee on the Economics of Site Planning and Housing of the American Institute of Architects lent its assistance to the movement by circulating a memorandum on the principles which should be embodied in such a law. Drawing largely on the experience of the New York State Board of Housing, this Committee stressed the need for large scale developments, planned, constructed, financed and operated by public utility housing

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corporations under state regulation. It outlined the devices by which the lowest possible rentals consistent with modern efficient standards may be obtained.

Course of State Legislation.—The interest in proposed legislation of this type was widespread. Official bodies which undertook studies of the problem include the Illinois Housing Commission, a temporary body established by the legislature in 1931, a special Housing Committee of the Cleveland City Council, the Massachusetts Special Commission on Stabilization of Employment, the Michigan Committee on Trade Recovery, the Housing Commission of the State of Delaware, and the New Jersey State League of Municipalities. Laws were passed in Ohio and Texas. A bill substantially similar to the New York law was introduced in the Pennsylvania legislature for the second successive year, but failed of passage; it was backed by active housing associations in Philadelphia and Pittsburgh, and will be reintroduced next year. A carefully prepared bill, backed by the Housing Commission, failed of passage in the Illinois legislature due to the opposition of the rural representatives to the use of eminent domain; there, too, a further attempt to secure its passage will be made. Bills were also introduced, but not passed, in Alabama and Indiana. Interest in securing legislation was also found in California, Maryland, Minnesota, Missouri, Virginia and the District of Columbia.

Ohio Housing Law.—The Ohio law is modeled on that of New York, but differs from it in certain important respects. It prescribes no maximum rental, but requires the board to fix a maximum charge for each project separately. The maximum permissible interest rate on mortgage indebtedness is fixed at 6 per cent instead of 5 per cent as in the New York Law. Municipalities are authorized to purchase from housing corporations part of the land included in housing projects, to be maintained as a public park or grounds. And the act includes no

exemptions from taxation of any kind. The law was actively backed by the Cleveland Chamber of Commerce, which is engaged in formulating plans for a very large slum clearance project in that city.

Texas Law.—The Texas law sets up no administrative agency, but merely authorizes the formation of housing corporations and the regulation of "the rents, charges, rate of return and area and method of operation" by municipalities. The use of eminent domain is not authorized, and there is no tax exemption or public aid of any kind. The act is an obvious attempt to comply with the requirements of the Federal act in the most general way possible.

HOUSING PROJECTS

At the present writing no construction has been started with the aid of financing by the Reconstruction Finance Corporation. The New York State Board of Housing has approved projects in New York City having a total estimated cost of approximately \$60,000,000, distributed among the boroughs of Manhattan, The Bronx, Brooklyn and Queens. The Reconstruction Finance Corporation has approved a loan of close to \$4,000,000 for the Bronx project, to be granted in the form of a purchase of the housing corporation's first mortgage bonds in the amount of two-thirds of the final cost of the project. The protests of real estate owners, who object principally to the tax exemption feature of the New York Law, have led the Mayor to ask that the loan be held up pending consultation with the city. This request has temporarily delayed the execution of the Board's program.

HOME LOAN BANKS

Another part of the Federal relief program is potentially of importance to housing. The Federal Home Loan Bank Act was passed to relieve the frozen credit situation affecting mortgage loans on small homes. Under the supervision of a Federal Home Loan Bank Board, twelve district banks have been established under this law. Membership in these

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banks is open to building and loan associations, insurance companies, savings banks and other lending institutions. Members must subscribe for a portion of the capital stock, and subscription by the United States Treasury in an amount up to \$125,000,000 is authorized. The banks are empowered to rediscount mortgages held by their members and other lending institutions. Advances made by the banks are carefully restricted by the terms of the statute. In no case may they exceed 60 per cent of the unpaid principal of the mortgage, or 40 per cent of the value of real estate securing the mortgage. At the present writing the organization of all but two of the district banks has been completed and the first loan has just been made. Hence it will be some time before the effect of the statute can be determined. The act was originally designed to give liquidity to the market for outstanding mortgages, and not directly to stimulate new construction. However, it is interesting to note that the Home Loan Bank Board, in a resolution recommending to members of the system the order in which applications should be preferred, gives first place to loans to institutions "who will make mortgage loans for the purpose of repairs, remodelling and other activities leading directly to the employment of labor."

PUBLIC HOUSING CONFERENCE

Before the adoption of this Federal relief legislation there were distinct signs of a growing interest in housing as a governmental matter. Early in the year bills were introduced in the New York legislature to provide statutory and constitutional authorization for direct municipal housing and the use of municipal credit for the purpose. This movement was supported by the formation of the Public Housing Conference for the purpose of carrying on education and propaganda in the interests of direct public assistance for the housing of members of the lower income groups.

TECHNICAL ADVANCES IN BUILDING

The possibility of attaining major cost reduction is revealed in reports of technical advances in the building industry. During the year various plans have been described for the introduction into home building of new materials and large scale methods. General Houses, Inc., made up of a group of large manufacturers of materials with a central coordinating organization, is reported to be perfecting plans for the production of houses composed of prefabricated standard units of varying types. Its plans include a marketing system similar to that used in the sale of automobiles.

SOCIAL HYGIENE

BY JEAN B. PINNEY

AMERICAN SOCIAL HYGIENE ASSOCIATION

GENERAL

Financial depression and unemployment have continued to influence social hygiene conditions during 1932. Six main effects are apparent: (1) the stability of ordinary normal persons is threatened; (2) family relations are jeopardized; (3) normal safeguards of environment and employment are breaking down; (4)

the problem of treatment for venereal patients has become acute; (5) prostitution is a more serious menace; and (6) the danger of delinquency is greater.

MEDICAL PROBLEMS

Venereal Diseases. — To contend with this situation, a growing emphasis is shown in medical and law

enforcement activities, for obvious reasons. One of the most difficult problems confronting health workers at any time is that of providing adequate medical treatment for syphilis and gonorrhea. In the present situation this problem assumes emergency proportions. Many persons who formerly went to private physicians or pay clinics for treatment for these diseases are now unable to pay anything at all. In consequence the free clinics are greatly burdened, and many of them, already over-crowded and understaffed in normal times, now find themselves unable to meet the stupendous increase in case loads. Some clinics even lack necessary drugs and other essentials. Patients turn away discouraged without treatment, and, as in other communicable diseases, the more uncontrolled infected cases at large in a community the greater the risk to its citizens. Health officials and voluntary workers realize that urgent measures must be taken to prevent the great increase in syphilis and gonorrhea infections which will surely result if adequate treatment facilities are not provided.

Prostitution. — Complicating the medical problem is the added menace to community welfare found in the present situation with regard to commercialized prostitution. It has been said during the depression that the promoters of such illegal traffic have succeeded in defeating public effort toward enforcement of laws and regulations against it. Studies made in selected cities unmistakably indicate a trend toward a policy of public and official toleration, with flagrant facilitation and in some communities the return of districts equivalent to the "red light areas" of pre-war days.

Intensified Program.—In order to give proper attention to the special demands created by this situation, social hygiene agencies have found it necessary to postpone or lay aside certain other activities included in the long-time program. It is considered, however, that definite progress has been made during the year both

in general public interest and in increased understanding among health and social workers of the necessity and value of social hygiene activities in a thorough-going program for general public welfare.

ORGANIZATION AND MEETINGS

High lights of the year's work are: organization of new state or community social hygiene groups in Louisiana, New Mexico, South Carolina, Pennsylvania, Vermont, and New York; special meetings, conferences, or programs among such groups as the National Conference of Social Work, National Congress of Parents and Teachers, National League of Women Voters, General Federation of Women's Clubs, American Medical Association, American Home Economics Association, American Hospital Association, American Public Health Association, National Safety Congress, American Dental Association, and state and local branches of these national groups, cooperating with the American Social Hygiene Association and the United States Public Health Service; United States Children's Bureau and United States Department of Justice; preparation of a comprehensive series of exhibits including charts, films, and other visual education material for showing at such meetings; regular publication of the *Journal of Social Hygiene*, the *Social Hygiene News*, *Venereal Diseases Information*, and an extensive series of special articles in other periodicals. A steady increase is noticed in the number of articles on social hygiene subjects included in standard magazines, such as, *Scribners*, *Harpers*, the *Forum*, and *Good Housekeeping*. A number of new books and pamphlet publications in the field of social hygiene have also been noted during the year.*

All such visual material, and literature has been made increasingly available to the public through appropriate mediums, such as public libraries, the radio, the press, and public health exhibits. To test the

*For bibliography inquire National Health Library, 450 Seventh Ave., New York.

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efficacy of the various instruments of education, demonstration campaigns for popular health instruction have been held in various communities, the Julius Rosenwald Fund, the American Social Hygiene Association and local agencies cooperating.

SOCIAL HYGIENE IN INDUSTRY

Social hygiene in industry is receiving increasing interest and impetus. Three important agencies, the National Safety Congress, the National Conference of Social Work, and the American Public Health Association, included special sessions or addresses on this subject during 1932. A pamphlet, *Hidden Costs in Industry*, and an exhibit, "Social Hygiene in Industry," prepared by the American Social Hygiene Association during the latter part of 1931 have been given wide distribution. Many employers are evincing new interest and cooperating in the general effort to prevent and cure syphilis and gonorrhea among their employees.

EDUCATIONAL WORK

The training of leaders, teachers and parents through courses in colleges, normal schools, special institutes and study groups, is one of the long-time objectives of social hygiene which has received a set-back through the necessity of present emphasis on medical and legal programs. Several satisfactory projects have nevertheless been carried through during the year, notably in Paterson Normal College, New Jersey, and the College of the City of New York. Two institutes for Negro groups in the Harlem District of New York City and the District of Columbia were held. A six weeks' credit course on Biology and Social Adjustments was given in cooperation with the Oregon Social Hygiene Society and the University of Oregon. A short course was given at the University of Florida.

THE RELIGIOUS FIELD

Progress has been made in the religious field, the Federal Council of Churches having gone steadily forward with the program of its Com-

mittee on Marriage and the Home, which looks to see the church become a strong social hygiene force through the steady application of the principles developed by the Committee. The social hygiene principles stated by the White House Conference on Child Health and Protection furnished the basis for extensive activity in the states and communities. Of special interest is the development of activities among the nursing profession. A cooperative project between the American Social Hygiene Association and the National Organization for Public Health Nursing has made possible a series of institutes, which have enlisted the interest and knowledge of a large group of public health nurses, while the National League for Nursing Education is giving attention to social hygiene training for student nurses.

INTERNATIONAL AFFILIATIONS

International affiliations have resulted in American participation in the programs of several important organizations, including the International Congress of Eugenics, the International Conference of Social Work, Conference for the Protection of Migrants, International Bureau for Suppression of Traffic in Women and Children, L'Union Internationale Congre le Péril Vénérien, and the League of Nations. The League through its Health Organization has promoted the study of the results of treatment of syphilis in five countries, in which the United States Public Health Service and five important clinics have taken part. The Enquiry into the Traffic in Women and Children in the Far East under the auspices of Social Section was completed in 1932, and the report will be acted upon by the Council of the League of Nations in January, 1933. This investigation occupied two years' field work by a Traveling Commission of which Mr. Bascom Johnson, of New York, was Chairman, and included reports on Siam, Indo-China, Hongkong, Mocao, China, Japan, Dutch East Indies, Philippines, Straits Settlements and Ma-

Jaya, Burma, India Ceylon, Persia, Irac, Syria, and Palestine. It was an extension of a similar study of conditions in Europe and Northern Africa, North and South America reported upon by the League of Nations in 1927.

RESEARCH

U. S. Public Health Service.—Research in the social hygiene field during the year 1932 has touched upon a variety of subjects. From the medical viewpoint may be mentioned several worthwhile projects in connection with the United States Public Health Service, some of which were carried on in cooperation with state and local official agencies and private organizations. Most of these researches are of general as well as technical import, as for example, the careful study being made of the effect of untreated syphilis on human economy, under way in Macon County, Alabama, in cooperation with state and local authorities and the Tuskegee Institute. The object is to find out in a large number of cases just what has happened in terms of physical damage to an infected individual over a long period of years when no treatment has been given him.

Malarial Treatment of Neuro-Syphilis.—There may be mentioned also research into the malaria treatment of neuro-syphilis at the Central State Hospital at Columbia, South Carolina, including a study of the growth or preparation and transportation of infectious material for the induction of malaria for therapeutic purposes. That this form of treatment of general paralysis of the insane is of great value is indicated by a recent British Ministry of Health report showing that 20 per cent of the total persons treated by this method up to 1929 have been permitted to return to their homes and over 12 per cent are considered as cured. In the United States about 11 per cent of new admissions to mental hospitals are caused by syphilis. It can be seen, therefore, that discovery of new treatment and control of methods are of vast im-

portance to society, both for the sake of the infected individual, and the community whose burden is very great in providing institutional care for him.

Biologic Treatment of Gonorrhea.

—In Chicago, experimentation in the biologic treatment of gonorrhea has continued under the scientific staffs of several important institutions. It is said that at present the gonococcus is probably the most ubiquitous of germs encountered by the health authorities of the country. In spite of the serious consequences of infection and its very great prevalence, no specific for its cure has yet been found.

Venereal Disease Case Reports.

—The Division of Venereal Diseases of the United States Public Health Service has during the year analyzed the case reports from five of the leading venereal disease clinics in the United States, the study resulting in several important conclusions. In early syphilis, says the Division, the statement can be made, with almost axiomatic force, that continuous treatment, whether prolonged or brief, and practically regardless of the drugs used, is superior in its results to intermittent or other schemes of treatment. Syphilis of the central nervous system was found to be almost three times as common in those who received little as in those who got much treatment with the arsphenamines, although thorough treatment does not protect necessarily against abnormalities in the spinal fluid. Six and one-half per cent of the patients who began treatment while their disease was in the early stages, attained a cure as evidenced by physical examination a year or more after treatment and adequate serologic controls. Unsatisfactory results were obtained in 26 per cent in spite of treatment; the unsatisfactory results may be classified either as clinical or serological relapse or as failure to reverse a positive serologic test. Three papers on the results of treatment of early syphilis have been published, and three on latent syphilis are in

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the process of publication. The compilation of statistical data from the five clinics on treatment reactions of the arsenicals and on the whole field of neurosyphilis are contemplated for next year by the Division.

Syphilis Among Negroes. — The study of the prevalence of syphilis in the southern rural Negro (under the Service in cooperation with the Rosenwald Fund and state and local agencies) and the demonstrations to show the practicability of mass treatment, begun in 1929, have been completed. In six southern states the rates ranged from 71 to 350 per 1,000 population infected. This rate is 10 to 50 times higher than the rate of 7.2 per 1,000 Negroes under treatment obtained in the one-day census studies. The per capita cost of case-finding averaged 54 cents. On the basis of the total number of Negroes examined (almost 30,000) the per capita cost for the entire project annually was approximately \$2.30. The per capita cost of diagnostic and therapeutic blood tests and treatments of all cases of syphilis which started treatment at any time averaged for one year \$8.60.

Vaginitis.—The New York Tuberculosis and Health Association will shortly publish a report of a social and medical research study of the treatment of vaginitis in little girls. This work was conducted in cooperation with the American Social Hygiene Association.

Cost of Syphilis.—Another noteworthy study is under way by the Missouri Social Hygiene Association on the cost of syphilis to the community. Syphilis as an economic problem specially from the standpoint of the ability of the patient to pay for treatment has been the subject of study by Dr. Albert Keidel of Johns Hopkins University, and also by Dr. Michael Davis and Dr. Leon Bromberg of Chicago.

Reports On Medical Facilities.—The American Social Hygiene Association has continued its studies of clinic and hospital practices for the treatment of the venereal diseases with reports on medical facilities in Orange and Englewood, New Jersey,

and treatment for Negroes at the Harlem Hospital, New York City.

Illegal Practitioners. — Studies of the activities of illegal and unethical medical practitioners have been made in Dallas, Texas, Jefferson County, Alabama, and New York City. These are the most recent of a nationwide series of inquiries into the extent and kind of fraudulent advertising of cures for the venereal diseases, and methods used by quacks in approaching prospective patients, varieties of goods and services sold, and costs, and the number of patients seeking such treatment. Enough has been learned to indicate that the individuals thus treated in person or by correspondence number many thousands. Through cooperation by the National and state Better Business Bureaus, the Federal Government, state boards of health and the American Social Hygiene Association, many of these "mail-order" charlatans have been tracked down and put out of business. In the Harlem District of New York City, for example, twelve individuals were arrested for "practicing medicine without a license." Of these, nine have already been convicted, the other three with trials still pending. Inquiries among druggists in cities have indicated that many more thousands of individuals with syphilis or gonorrhea are going to drug stores for advice and remedies for self-treatment. Information obtained from druggists has been checked by casual interviews by investigators with young men on the streets. In one city, out of 100 young men spoken to, 42 advised going to a drug store and 4 per cent using home remedy, while only 40 per cent suggested visiting a physician or clinic. The remainder of the young men approached did not give any advice. These studies are considered important, as demonstrating the great need for popular health education as regards the venereal diseases, and the urgency for more active control measures on the part of official agencies, with the support and active assistance of the public. It was gratifying to note that cities

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with good laws, active health departments and social hygiene societies showed a better record in regard to the volume of quackery, self-medication and drug store treatment, than cities in which local health education efforts were lacking. In the field of law enforcement against commercialized prostitution the American

Social Hygiene Association has made a study of present conditions in the 48 states, and a new compilation of social hygiene laws. Another study under way by the Association concerns the place of sex delinquency in the field of crime prevention, and the success or failure of official and voluntary efforts to deal with it.

MENTAL HYGIENE

BY PAUL O. KOMORA

ASSOCIATE SECRETARY, NATIONAL COMMITTEE FOR MENTAL HYGIENE

THE STRAIN OF THE DEPRESSION

Mental Health.—Until now the United States has stood the strain of the depression pretty well so far as serious mental disease is concerned. There is as yet no general rise in mental disorders of institutional severity, although here and there hospital superintendents are beginning to report increases in admissions and readmissions, which they ascribe in part to economic conditions. As mental diseases usually take years to develop it is a little early to look for such a result.

Economic and Social Factors.—But 1932 brought plenty of evidence of the effects of hard times on mental health conditions in other ways. State hospitals reported increasing difficulty in returning patients to the community, because of unemployment and the inability or unwillingness of their families to care for them; there is more overcrowding, as a result, and more difficulty in maintaining standards of care and treatment; legislative appropriations have been reduced, especially for institutional expansion; admissions and readmissions to institutions for the feeble-minded have increased, indicating a tendency to eliminate mental defectives, especially the lower grades, from industrial and social life; and, most significant of all, there is a marked increase in the milder types of mental and nervous disturbances, behavior disorders and personality maladjustments, particularly among the unemployed. As one ob-

server expressed it: "The average man and the average family have borne up heroically under the terrific economic pressure. But the long continued uncertainty and anxiety are taxing the endurance of the strongest and are unquestionably sowing the seeds of much future mental disease. Thousands of individuals are struggling to maintain their mental equilibrium while their own security and that of their dependents is threatened, shaken, or finally shattered. Fear and anxiety are undermining individual and family morale and taxing the adaptive capacities of all groups in the population. The constant frustration of hopes and ambitions among the unemployed cannot but adversely affect personality adjustment and mental health in many thousands of them."

Mental Reactions.—Among unhealthy mental reactions to the depression, psychiatrists note attitudes of defeatism and failure, chronic irritability, bitterness, sullenness, rebellion, sensitiveness to fancied slights, discrimination or criticism, mental depressions ranging from ordinary spells of the "blues" to melancholia, apathy, indifference, resignation and hopelessness.

Organized Welfare Effort.—Alive to the mental consequences of unemployment, mental hygiene organizations and social, educational and religious agencies in increasing numbers have sought to minister to the security and morale of the unemployed,

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adopting various individual and community measures for the constructive handling of mental health problems.

CHILD GUIDANCE

Clinical Growth.—Despite the depression child guidance work has been holding its own. Budgets have been necessarily reduced, but with one exception—in New Orleans—no major clinics have gone under during the past year. The National Committee for Mental Hygiene which, in 1922, in collaboration with The Commonwealth Fund, inaugurated this work, has not engaged in promotion since 1924, yet, even in the comparative absence of propaganda, child guidance facilities have nearly quadrupled since that time. Only two full-time clinic programs have been discontinued during this period of growth that has brought into 30 of the first 50 cities of the United States the equivalent of a full-time clinic consisting of a psychiatrist, psychologist and two psychiatric social workers.

Rural and Small Town Service.—This growth, however, has been almost entirely in the large centers of population. The smaller cities and rural districts are practically untouched by clinical child guidance and a further increase in the number of clinics will depend largely upon the opening up of the rural field. With this end in view The National Committee for Mental Hygiene has for two years past studied the child guidance activities of hospitals, universities and state departments throughout the country, every state with a significant program having been visited by members of the National Committee's staff. Out of those studies, it is hoped, will come a plan for satisfactory rural and small town child guidance services.

PSYCHIATRIC TEACHING IN MEDICAL SCHOOLS

Last year saw promising indications of a substantial improvement in the status of psychiatric teaching in American medical schools. Studies of most of the approved medical schools made by The National Committee for Mental Hygiene revealed that prac-

tically all of them have shown a keen interest in psychiatric teaching and a definite desire to increase the efficiency of their schools in this department. Several schools have asked for advice and assistance in bettering their psychiatric teaching; ten have provided for increased psychiatric training during the coming year; two plan to include psychiatric training in the education of pediatricians; five of the best mental hospitals in the country are enlarging their facilities for interne training; and several other post-graduate training centers have promised to extend their training facilities when they are financially able to do so.

NEW YORK HOSPITAL-CORNELL MEDICAL CENTER

The important place given to psychiatry in the program of the New York Hospital-Cornell University medical center, opened in New York City in the fall of 1932, marks a noteworthy advance in the unification of physical and mental medicine. This development, paralleling the earlier-built Presbyterian Hospital-Columbia University medical center in its scope and functions, includes as a central feature the Psychiatric Clinic, a research and treatment institution of 110 beds, which functions as an integral part of the center and is so situated with reference to the other departments of the hospital and the medical college as to insure to every patient requiring it, every facility for study and care with regard to mental, emotional and personality, as well as physical and organic needs. The clinic was constructed and endowed with funds provided for that purpose in his will by the late Payne Whitney.

ILLINOIS MENTAL HYGIENE SURVEY

A new type of mental hygiene survey was conducted during 1932 in the State of Illinois where a group of forward-looking laymen and professional workers addressed themselves to the task of analyzing and evaluating mental health problems, activities, responsibilities, resources and needs as they exist at the pres-

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ent time, and of formulating a co-ordinated, workable plan of organization and function designed to stimulate further progress in this field. The report of this study, published by The Illinois Board of Public Welfare under the title "The Effort for Mental Health in the State of Illinois," will not only have intrinsic value for that state but will serve as a useful guide for similar studies in other parts of the country.

MEDICAL FACILITIES IN MENTAL HOSPITALS

The Committee on Medical Services of the American Psychiatric Association, reporting at its 88th annual meeting in Philadelphia in the spring of 1932, observed the need for a more general acceptance of the necessity for qualified medical staffs in mental hospitals; for organized medical leadership in mental hospital and community activities; for concentration of general medical and surgical facilities in special hospital buildings; and for the training of personnel in schools for mental defectives. The committee also urged the more rapid extension of out-patient facilities, holding that mental clinics are the outposts in the campaign for prevention, and that the public, realizing the importance of mental hygiene and its growing acceptance by the medical profession, is increasingly demanding such clinics.

STUDIES AND CLASSIFICATION

The Committee on Statistics reported progress in the classification of mental diseases and in statistical procedure in several countries, and pointed to the appearance during the past year of several noteworthy statistical studies in the field of mental diseases, studies made possible by the systematic accumulation of data secured through the methods of uniform classification and statistical recording built up since 1917 by the American Psychiatric Association and The National Committee for Mental Hygiene.

LAW AND PSYCHIATRY

The Committee on the Legal Aspects of Psychiatry reported steady progress

in the building up of a rapport between the law and psychiatry, thanks to the continued cooperation of the American Bar Association and the American Medical Association. The committee prepared a bibliography at the request of the American Bar Association to aid the latter in bringing more forcibly to the attention of lawyers throughout the country the practical value of psychiatry to the administration of law, particularly criminal law. The increasing interest of the legal fraternity in psychiatry, the committee also reported, had taken tangible form in several instances during the past year in the organization of psychiatric clinics in the criminal courts, notably the clinic at the Court of General Sessions in New York City.

CRITERIA OF MENTAL DEFICIENCY

New views on mental deficiency were propounded at the 56th annual meeting of The American Association for the Study of the Feeble-minded held in Philadelphia in the spring of 1932. The papers reflected a tendency to revise the criteria of mental retardation and to bring to bear upon its study the same attitudes and approaches, principles and practices, as are applicable to the study of human behavior in general. It was recognized that social adjustments and behavior patterns played a more important part than the intelligence quotient in determining what constitutes feeble-mindedness; that there was considerable variability in the intelligence quotient as such; that emotional, environmental and physical relationships play a vital part in intelligence determination, and that explanations of deviations from the normal must be considered in the light of all these factors.

INTERNATIONAL MENTAL HYGIENE MOVEMENT

The international movement for mental hygiene took another step forward when Clifford W. Beers, the founder of the mental hygiene movement, met with some 50 European representatives in Paris last spring to initiate plans for the Second Inter-

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national Congress on Mental Hygiene and to aid in coordinating the plans of the International Committee with those of the European Reunion on Mental Hygiene and Prevention. The "European Reunion" held in Paris in May and attended by delegates from more than a dozen countries, was placed on a permanent basis, with the understanding that annual meetings will be held in a different country of

Europe each year. The next "European Reunion" will be held in Rome in September, 1933, upon the invitation of the Italian representatives. Another result of Mr. Beers's visit was the perfecting of the organization of The International Committee for Mental Hygiene begun at the First International Congress at Washington, in 1930, and completed at the meeting in Paris.

CHILD WELFARE

By C. C. CARSTENS

EXECUTIVE DIRECTOR, CHILD WELFARE LEAGUE OF AMERICA, INC.

TRANSIENT YOUTH

Because of continued unemployment a small army of boys, variously estimated as from 200,000 to 500,000, have become wanderers. Either their homes were broken up or they were no longer welcome there if they could not contribute to the budget, or they started out to hunt employment or perhaps nothing more than a new adventure. They travel mostly as unwelcome passengers on freight trains but are rarely dislodged by the railroad officials. While most of them were decent when they started out their associations on the way are demoralizing. A few communities have equipped themselves to care for them decently, but on the whole they live most of the time under conditions of great danger, in wretched surroundings and in wretched company. A National Committee for Homeless and Transients has been organized for the purpose of trying to find effective methods of dealing with this new menace to the Nation's children.

MOTHERS' AID

The Children's Bureau of the U. S. Department of Labor in its study of mothers' aid laws and the distribution of mothers' aid, now legal in 46 states and the District of Columbia, found that there had been a very uneven development in local admin-

istration in the various states, but particularly in the states which have no state agency specifically authorized to supervise such administration or in which such an agency has not undertaken to educate public opinion regarding mothers' aid. In seven states which adopted mothers' aid laws before 1918 from one-fifth to more than four-fifths of the counties reporting had failed to provide funds for this purpose. Some counties failed to distinguish between mothers' aid and poor relief. In others the amount of aid granted bore little relation to the amounts defined in the law. The economic depression has had a serious effect upon the giving of mothers' aid. Twenty-six out of the 101 counties reporting on mothers' aid in four southern states stated that aid to mothers had been discontinued during the year and principally because of the inability to collect taxes. In one of these states only thirteen of its seventy-five counties had been giving mothers' aid previously and four of these discontinued such grants because of lack of funds. Similar reports came from other states.

SCHOOL ATTENDANCE AND UNEMPLOYMENT

Gain in School Population.—A study of the Bureau of the Census records, made before the economic

CHILD WELFARE

depression, shows that the percentage of sixteen and seventeen-year-old boys and girls attending school increased from 42.9 per cent in 1920 to 57.3 per cent in 1930. The growth in school population among children of this age is particularly noticeable in urban areas, where the percentage grew from 39.2 in 1920 to 60.5 in 1930. Among the factors that have contributed to this increase the following are mentioned: increase in the amount and character of vocational training offered in the public schools; raising of the age for compulsory school attendance in certain states and better enforcement of the attendance laws; increase in the age at which young persons are admitted to employment because of the greater need for technically skilled workers, who cannot be obtained in the earlier years; growing recognition by pupils, parents and employers of the value of training offered in the upper years of the curriculum. There is evidence which would go to show that this percentage has been increased by the economic depression because of the smaller number of boys and girls between sixteen and seventeen years who could be employed.

The problem of unemployed boys is more serious than that of the girls, since the latter can keep busy at home with household tasks whereas boys have no such outlet for their energies. Every month these young people if unemployed become less employable; they become less presentable in appearance and less self-confident, and they lose the special skills that they had on leaving school. In addition they are growing too old for the jobs boys and girls leaving school usually take and are not getting the experience needed for the positions calling for more maturity.

Trade Studies for Girls.—The Manhattan Industrial High School of New York, a trade school for girls who are graduates of elementary or junior high schools, finds it virtually impossible, because of the present business depression, to place the 325 or more girls who completed the school work last year. It has pro-

vided a three-month post-graduate course in the trade previously studied or in some other subject that would equip the pupil with a second trade, as an alternative to its previous one month in industry requirement. A second alternative is an extra month in school, during which time the student is given special work on the private orders of the school's regular customers. These alternatives have been largely taken advantage of.

Extension of School Age.—The report of the New York State Department of Labor emphasizes the desirability of legislative action to raise the age of leaving school from fourteen to fifteen. Although failure to get a job may be working a severe hardship, in some cases it is found to be a decided advantage that boys and girls of this age spend at least the period of depression in the school room and gain further education and training. In ordinary times it is unusual for even 20 per cent of the children placed, to hold the same job for as long as six months. Whether this decrease in child labor during the depression years is permanent or merely a temporary fluctuation due to scarcity of jobs remains to be determined by future records.

CHILD HEALTH

Mortality Rate.—The lowest infant mortality rate ever attained by the cities of the United States was that of 1930, recently reported by the American Child Health Association's analysis of the records of 860 out of 930 cities of 10,000 population and over in the birth registration area. The figures also include 14 cities in two states not included in the birth registration area, namely, Texas and South Dakota. The 1930 rate was 62 per 1,000 live births, a figure that is four points lower than that of the previous year. As in 1929, the Pacific Coast carried off the honors. Seattle, with an infant mortality rate of 37 per 1,000 live births, leads the list of cities with a population of more than 250,000. San Francisco ranks next, with 40, and Portland, Ore., is third, with 41. In 1929 Portland led, Seattle was second and Min-

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neapolis was third. Among the ten largest cities in the country in 1930, two tied for first place—Chicago and St. Louis,—each with an infant mortality rate of 54. Cleveland stands next with 55, and New York third with 57. Nine of the ten cities show lower rates in 1930 than in 1929. Long Beach, California, with a rate of 43, leads the cities with a population of 100,000 to 250,000; Oak Park, Illinois, with a rate of 28, leads the cities with a population of 50,000 to 100,000. As was the case in 1928 and 1929, the largest cities have the lowest average of infant mortality rates. The U. S. Public Health Service reports the infant mortality rate for the first nine months of 1932 as being 55 per thousand live births, as against 60 for the same months of 1931, and 62 in 1930.

A School of Midwifery was opened in connection with the Lobenstine Midwifery Clinic in New York City, the first of its kind in the United States. Approximately ten per cent of all births in New York City are attended by midwives.

CHILD GUIDANCE

The Commonwealth Fund, which has stimulated the development of many child guidance clinics, to study the problems of children, who for any cause show abnormal behavior, reports that on Sept. 30, 1931, there were 232 child guidance clinics in which children are given care by a staff consisting of psychiatrist, psychologist and psychiatric social workers. Such clinics have won their place among accepted agencies of human betterment. But the service extends out beyond the child guidance clinics, for 625 of the total of 674 clinics listed in the Directory of Psychiatric Clinics offer service to children or are for children only.

JUVENILE DELINQUENCY AND CRIME

Dealing With Offenders.—Juveniles who violate Federal laws, under a new Federal law, come before courts that have no juvenile court procedure. The Attorney General of the

United States and Federal judges are now authorized to return juvenile delinquents coming into Federal custody as promptly as possible to the communities from which they come for care and supervision or for punishment by state authorities whenever practicable, with the object that ultimately each state may assume responsibility for dealing with its own juvenile offenders against Federal laws.

Arrests.—The Commissioner of Corrections of the State of New York reports that one out of every four persons over the age of 16 arrested in New York State in 1930 was under 21, and the number of arrests of persons between 16 and 18 was double the number for the 19- and 20-year age groups.

Types of Crime.—An analysis of the types of crime showed that automobile theft constituted 35 per cent, burglary 28 per cent, and robbery 13 per cent of the felonies committed by the age group between 16 and 18. About one-third of the persons arrested for homicide were under the age of 25.

Crime Factors.—A study of Sing Sing's inmates shows that general early training, including unfavorable home conditions, probably has more to do with the development of the criminal than strictly mental conditions, such as insanity and feeble-mindedness. The average intelligence of these inmates compared favorably with the intelligence of the general population, as disclosed by the tests given at the time of the World War. Approximately two per cent were insane and about 15 per cent feeble-minded.

RECREATION

Studies of park needs of various cities show that one acre of open space is needed for each 100 inhabitants and that from 30 to 50 per cent of this area should be devoted to active recreational uses. The Playground Commission of San Francisco has studied methods of eliminating serious delinquency areas. It reports that the most important factor in transforming such an area is the director at large. If he is a man

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

of the right type and given a free hand it is possible for him in a short time to transform the delinquent gangs into constructive clubs. The Commission has successfully used a group of young and enthusiastic law students as directors.

MISCELLANEOUS

Sight Saving.—Twenty-two additional sight-saving classes were organized in the United States in 1931, bringing the total to 398. Only 7.5 per cent of new pupils admitted to schools for the blind in 1931 lost their eyesight because of ophthalmia neonatorum (babies' sore eyes), as compared with 9 per cent in 1930 and 28 per cent in 1907. A very considerable proportion of eye accidents to children were due to the use of carelessly selected playthings, such as air-guns, rifles, sharp-pointed toys and scissors.

The U. S. Children's Bureau celebrated its Twentieth Anniversary during the year.

Minors' Compensation.—Pennsylvania has amended its Workmen's Compensation Law by providing for the payment of double compensation to illegally employed minors injured in industry.

Child Marriage.—In the State of New York, outside of New York City, it is reported that in 230 marriages in 1930 the bride was under the age of sixteen, 33 being only fourteen, 197 being fifteen. The records do not support the assertion that child marriages are confined largely to the section of the population that is of foreign birth or of immediate foreign origin. Of the 230 brides only ten were foreign born, 12 were mixed, and 55 of foreign parentage, and 153 were of native parentage.

DIVISION XV

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

JUSTICE AND MAINTENANCE OF ORDER

AMERICAN BAR ASSN., Section on Criminal Law, Endicott Bldg., St. Paul, Minn.

AMERICAN CIVIL LIBERTIES UNION, 100 Fifth Ave., New York City.

AMERICAN COUNCIL OF LEARNED SOCIETIES, 597 Fifth Ave., New York City.

AMERICAN INSTITUTE OF CRIMINAL LAW AND CRIMINOLOGY, 357 E. Chicago Ave., Chicago, Ill.

AMERICAN LAW INSTITUTE, 3400 Chestnut Street, Philadelphia, Pa.

AMERICAN PRISON ASSN., 135 E. 15th St., New York City.

NATIONAL COMMITTEE ON PRISONS AND PRISON LABOR, 730 Fifth Ave., New York City.

NATIONAL CRIME COMMISSION, 120 Broadway, New York City.

NATIONAL POLICE CONFERENCE, 240 Centre St., New York City.

NATIONAL PROBATION ASSN., INC., 370 Seventh Ave., New York City.

NATIONAL SOCIETY OF PENAL INFORMATION, 114 E. 30th St., New York City.

SOCIETY FOR THE PREVENTION OF CRIME, 177 William St., New York City.

WOMEN'S PRISON ASSN., 110 Second Ave., New York City.

SOCIAL ORGANIZATIONS

AMERICAN ACADEMY OF POLITICAL AND SOCIAL SCIENCE, 3622 Locust St., West Philadelphia, Pa.

AMERICAN NATIONAL RED CROSS, 17th and D Sts., N. W., Washington, D. C.

AMERICAN SEAMEN'S FRIEND SOCIETY, 72 Wall Street, New York City.

AMERICAN SOCIETY FOR THE PREVENTION OF CRUELTY TO ANIMALS, 50 Madison Ave., New York City.

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- AMERICAN SOCIETY FOR THRIFT, 9 E. 46th St., New York City.
- BOY'S CLUB FEDERATION, 420 Lexington Ave., New York City.
- BOY SCOUTS OF AMERICA, 2 Park Ave., New York City.
- CHILDREN'S AID SOCIETY, 105 E. 22nd St., New York City.
- CIVIC FORUM, 123 W. 43rd St., New York City.
- FEDERAL COUNCIL OF CHURCHES, ETC.
—Commission on the Church and Social Service, 105 E. 22nd St., New York City.
- GIRLS' FRIENDLY SOCIETY IN AMERICA, 15 E. 40th St., New York City.
- GIRLS' SERVICE LEAGUE OF AMERICA, 138 E. 19th St., New York City.
- HUMANITARIAN LEAGUE, INC., 131 W. 74th St., New York City.
- HUMAN PROGRESS ASSN., 220 W. 42nd St., New York City.
- INTERCOLLEGIATE SOCIALIST SOCIETY, 70 Fifth Avenue, New York City.
- NATIONAL CATHOLIC WELFARE CONFERENCE, 1312 Massachusetts Ave., N. W., Washington, D. C.
- NATIONAL CONFERENCE OF SOCIAL WORK, 25 E. 9th St., New York City.
- NATIONAL CONFERENCE FOR THE SOCIAL STUDIES, 671 Park Ave., New York City.
- YOUNG MEN'S CHRISTIAN ASSN., International Committee, 347 Madison Ave., New York City.
- KNIGHTS OF COLUMBUS, P. O. Box 1670, New Haven, Conn.
- KNIGHTS OF THE KU KLUX KLAN, INC., 2621 Peachtree St., Atlanta, Georgia.
- KNIGHTS OF PYTHIAS, 754 Security Building, Minneapolis, Minn.
- LOYAL ORDER OF MOOSE, Mooseheart, Ill. (Supreme Lodge of the World).
- MODERN WOODMEN OF AMERICA, 1504 Third Ave., Rock Island, Ill.
- ROYAL ARCANUM SUPREME COUNCIL, 407 Shawmut Ave., Boston, Mass.
- ROTARY INTERNATIONAL, 211 W. Wacker Drive, Chicago, Ill.
- WOODMEN OF THE WORLD, Sovereign Camp, 14th and Farman Sts., Omaha, Nebraska.

(SOCIAL) HOME LIFE

- LANDLORDS' COOPERATIVE ASSN., 116 Nassau St., New York City.
- NATIONAL HOUSING ASSN., 105 E. 22nd St., New York City.
- NATIONAL PLANT, FLOWER & FRUIT GUILD, 70 Fifth Ave., New York City.
- NEW YORK ASSN. FOR IMPROVING THE CONDITIONS OF THE POOR, 105 E. 22nd St., New York City.
- OWN-YOUR-HOME EDUCATIONAL CAMPAIGN FOUNDATION, 524 First Ave., New York City.
- OWN-YOUR-HOME LEAGUE, INC., 151 W. 33rd St., New York City.

(SOCIAL) CHILDREN

- SOCIAL FRATERNITIES**
- ALLIED PATRIOTIC SOCIETIES, INC., 299 Madison Ave., New York City.
- ANCIENT & ACCEPTED SCOTTISH RITE OF FREEMASONRY,—Northern Jurisdiction, 117 Statler Building, Boston, Mass.—Southern Jurisdiction, 1733 16th St., Washington, D. C.
- BENEVOLENT AND PROTECTIVE ORDER OF ELKS OF THE U. S. A., 2750 Lake View Ave., Chicago, Ill.
- INDEPENDENT ORDER OF ODD FELLOWS, 12 West Chase St., Baltimore, Md.
- INTERNATIONAL ADVERTISING ASSN., 420 Lexington Ave., New York City.
- INTERNATIONAL ASSN. OF LIONS CLUBS, 350 McCormick Building, Chicago, Ill.
- KIWANIS INTERNATIONAL, 164 W. Jackson Blvd., Chicago, Ill.
- BIG BROTHER MOVEMENT, INC., 315 Fourth Ave., New York City.
- BIG BROTHER AND BIG SISTER FEDERATION, INC., 425 Fourth Ave., New York City.
- CAMP FIRE GIRLS, INC., 31 E. 17th St., New York City.
- CHILD CONSERVATION LEAGUE OF AMERICA, 205 W. Monroe St., Chicago, Ill.
- CHILD WELFARE LEAGUE OF AMERICA, 130 E. 22nd St., New York City.
- CHILDREN'S AID SOCIETY, 105 E. 22nd St., New York City.
- HEBREW SHELTERING GUARDIAN SOCIETY OF NEW YORK, Pleasantville, N. Y.
- NATIONAL CHILD LABOR COMMITTEE, 215 Fourth Ave., New York City.
- NATIONAL CHILD WELFARE ASSN., 70 Fifth Ave., New York City.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

SANTA CLAUS ASSN., INC., 152 W. 42nd St., New York City.

(SOCIAL) HEALTH

AMERICAN BIRTH CONTROL LEAGUE, 152 Madison Ave., New York City.

AMERICAN CHILD HEALTH ASSN., 370 Seventh Ave., New York City.

AMERICAN FOUNDATION FOR THE BLIND, INC., 480 Lexington Avenue, New York City.

AMERICAN MISSION TO LEPERS, 156 Fifth Ave., New York City.

AMERICAN POSTURE LEAGUE, INC., 1 Madison Ave., New York City.

AMERICAN SOCIAL HYGIENE ASSN., INC., 370 Seventh Ave., New York City.

ANTI-CIGARETTE LEAGUE OF NEW YORK STATE, 209 W. 107th St., New York City.

BENEVOLENT SOCIETY OF THE U. S. FOR THE PROPAGATION OF CREMATION, 1828 Barnes St., New York City.

COMMITTEE ON DISPENSARY DEVELOPMENT, 151 Fifth Ave., New York City.

EUGENICS RESEARCH ASSN., Cold Spring Harbor, L. I., N. Y.

NATIONAL COMMITTEE FOR THE DISABLED, 245 E. 23rd St., New York City.

NATIONAL HEALTH COUNCIL, 370 Seventh Avenue, New York City.

NATIONAL HOUSING ASSN., 105 E. 22nd St., New York City.

PLAYGROUND AND RECREATION ASSN. OF AMERICA, 315 Fifth Ave., New York City.

(SOCIAL) MORALS

AMERICAN ASSN. OF SOCIAL WORKERS, 130 E. 22nd St., New York City.

AMERICAN FUND FOR PUBLIC SERVICE, INC., 2 W. 13th St., New York City.

AMERICAN HUMANE ASSN., 80 Howard St., New York City.

ANTI-PROFANITY LEAGUE, Ware, Mass.

CHARITY ORGANIZATION SOCIETY OF THE CITY OF NEW YORK, 105 E. 22nd St., New York City.

CHICAGO CRIME COMMISSION, 300 W. Adams St., Chicago, Ill.

MORALITY LEAGUE OF AMERICA, 222 Madison Ave., New York City.

NATIONAL CHRISTIAN LEAGUE FOR PROMOTION OF PURITY, 5 E. 12th St., New York City.

NATIONAL COMMITTEE FOR BETTER FILMS, 70 Fifth Ave., New York City.

NATIONAL SAVE-A-LIFE LEAGUE, INC., 50 E. 42nd St., New York City.

NEW YORK SOCIETY FOR THE SUPPRESSION OF VICE, 215 W. 22nd St., New York City.

NON-SMOKERS' PROTECTIVE LEAGUE OF AMERICA, 101 W. 72nd St., New York City.

SAFETY FIRST LEAGUE, 47 W. 47th St., New York City.

TRAVELERS' AID SOCIETY OF N. Y., 144 E. 44th St., New York City.

(SOCIAL) TEMPERANCE

ANTI-SALOON LEAGUE OF AMERICA, 370 Seventh Ave., New York City.

ASSOCIATION AGAINST THE PROHIBITION AMENDMENT, Room 935-941 National Press Building, Washington, D. C.

CATHOLIC TOTAL ABSTINANCE UNION OF AMERICA, Pittsburgh, Pa.

INTERNATIONAL NARCOTIC CRUSADE, INC., 156 Fifth Ave., New York City.

MODERATION LEAGUE, INC., 385 Madison Ave., New York City.

NATIONAL TEMPERANCE SOCIETY, 289 Fourth Ave., New York City.

WORLD LEAGUE AGAINST ALCOHOLISM, 150 Fifth Ave., New York City.

FOUNDATIONS

CARNEGIE ENDOWMENT FOR INTERNATIONAL PEACE, 2 Jackson Place, Washington, D. C.

CARNEGIE FOUNDATION, 522 Fifth Ave., New York City.

CARNEGIE HERO FUND COMMISSION, 2307 Oliver Building, Pittsburgh, Pa.

CARNEGIE INSTITUTION OF WASHINGTON, 16th and P Sts., N. W., Washington, D. C.

GENERAL EDUCATION BOARD, 61 Broadway, New York City.

GUGGENHEIM FOUNDATION, 551 Fifth Ave., New York City.

HALL OF FAME FOR GREAT AMERICANS, University of the City of New York, New York City.

XV. SOCIAL PROBLEMS AND CONDITIONS

MORO EDUCATIONAL FOUNDATION, 475 Fifth Ave., New York City.
 ROCKEFELLER FOUNDATION, 61 Broadway, New York City.
 ROCKEFELLER INSTITUTE, York Ave. and 66th St., New York City.
 ROOSEVELT MEMORIAL ASSN., 28 E. 20th St., New York City.
 RUSSELL SAGE FOUNDATION, 130 E. 22nd St., New York City.
 WOODROW WILSON FOUNDATION, 6 E. 39th St., New York City.

WOMEN'S WORK AND PROGRESS

AMERICAN ASSN. OF UNIVERSITY WOMEN, 1634 I St., N. W., Washington, D. C.
 AMERICAN NURSES' ASSN., 370 Seventh Ave., New York City.
 AMERICAN WOMEN'S ASSN., INC., 220 Madison Ave., New York City.
 CHURCH WOMEN'S LEAGUE FOR PATRIOTIC SERVICE, INC., 132 E. 57th St., New York City.
 GENERAL FEDERATION OF WOMEN'S CLUBS, 1734 N St., N. W., Washington, D. C.
 NATIONAL AMERICAN WOMAN SUFFRAGE ASSN., 171 Madison Ave., New York City.
 NATIONAL ASSOCIATION OF WOMEN PAINTERS AND SCULPTORS, 17 E. 62nd St., New York City.

NATIONAL COUNCIL OF ADMINISTRATIVE WOMEN IN EDUCATION, 1211 Gilpin Ave., Wilmington, Delaware.
 NATIONAL COUNCIL OF WOMEN, U. S. A., 370 7th Ave., New York City.
 NATIONAL FEDERATION OF COLLEGE WOMEN, Rolla, Mo.
 NATIONAL LEAGUE OF GIRLS' CLUBS, 472 W. 24th St., New York City.
 NATIONAL LEAGUE OF WOMEN VOTERS, 532 17th St., N. W., Washington, D. C.
 NATIONAL WOMAN'S CHRISTIAN TEMPERANCE UNION, 1730 Chicago Ave., Evanston, Ill.
 NATIONAL WOMAN'S PARTY, 21 First St., N. E., Washington, D. C.
 NATIONAL WOMAN'S RELIEF CORPS, 64 Spring St., Oberlin, Ohio.
 PROFESSIONAL WOMEN'S LEAGUE, 56 W. 53rd St., New York City.
 SOUTHERN WOMEN'S EDUCATIONAL ALLIANCE, Hotel Richmond, Richmond, Va.
 WOMEN'S CHRISTIAN TEMPERANCE UNION, 1730 Chicago Ave., Evanston, Ill.
 WOMEN'S EDUCATIONAL AND INDUSTRIAL UNION, 264 Boylston St., Boston, Mass.
 WOMEN'S ROOSEVELT MEMORIAL ASSN., Roosevelt House, 28 E. 20th St., New York City.
 WOMEN'S TRADE UNION LEAGUE, 247 Lexington Ave., New York City.

DIVISION XVI

LABOR AND LABOR LEGISLATION

LABOR CONDITIONS AND ORGANIZATIONS

BY CHARLES E. BALDWIN

ACTING COMMISSIONER OF LABOR STATISTICS, DEPARTMENT OF LABOR

WAGES, EMPLOYMENT, AND COST OF LIVING

Wages.—The regular annual survey by the Bureau of Labor Statistics of wage rates in the union time-work trades showed that from 1931 to 1932 there was an average decrease of 11.4 per cent in the union scales established by collective agreement, the average hourly rate having fallen from \$1.254 to \$1.111. Of the 69 trades covered, only 11 had been able to obtain an increase in rates, 1 kept the 1931 rate, and 57 had to accept a lower scale. The members of 20 of the railroad labor organizations in January, 1932, accepted a 10 per cent reduction in their wage rates, effective for one year. This agreement has recently been extended for another 10 months. The recent wage surveys of the Bureau of Labor Statistics—boot and shoe, cotton goods, dyeing and finishing of textiles, hosiery, lumber, underwear, and woolen and worsted goods, industries — which cover unorganized as well as organized workers, all show general decreases in full-time weekly earnings. In some instances this was due partly to shorter hours of labor, but generally it was the result of lower hourly rates. The decreases in average weekly full-time earnings from 1930 to 1932, shown by these surveys, ranged from 10.8 per cent in the dyeing and finishing of textiles to 29.6 per cent in the lumber industry. During the same period the entrance

wage rate of common labor fell 11.6 per cent. Of the industries above mentioned, studied in 1932, the highest average full-time weekly earnings (\$20.52) occurred in the dyeing and finishing of textiles and the lowest (\$14.20) in the manufacture of cotton goods. Per capita earnings decreased 15.5 per cent from December, 1931 to December, 1932.

Cost of Living.—The wage decreases above noted were partly offset by the 9.4 per cent decrease which took place in the cost of living from December, 1931 to December, 1932.

Employment.—The above figures do not, however, tell the whole story. Not only has there been a considerable decrease in wage rates and in actual earnings, there has also occurred a tremendous decline in the number of wage earners employed. During 1932, employment declined in all of the industries for which data are obtained by the Bureau of Labor Statistics, ranging from 1.7 per cent in the production of crude petroleum, to 35 per cent in metalliferous mining.

Hours of Labor.—The depression, with its accompanying falling off in orders for goods, necessitating curtailed production, has led to greatly decreased working hours. Figures collected by the Bureau of Labor Statistics for 9,200 plants in 89 manufacturing industries showed that in May, 1932, these establishments

were averaging 37.3 hours per week. Nearly 15 per cent were giving their employees 24 hours' work (the equivalent of three 8-hour days) or less per week; 30.9 per cent were operating 30 hours or less per week, and 49.7 per cent 36 hours or less. Only 2.7 per cent were operating on a 48-hour week (the normal 8-hour day) and 2.9 per cent on the 44-hour week (the normal 8-hour day, with Saturday half-holiday). Altogether, 13.6 per cent were operating 48 hours or more per week.

UNEMPLOYMENT RELIEF

Emergency Measures.—Practically all forces joined in the effort to relieve the economic situation, whether through increasing jobs, spreading of work, relief of destitution, or otherwise. Enormous amounts have been appropriated and spent on programs of public works, public relief, etc. Provision of work for those out of jobs was usually the first objective in all communities. Public building programs, road construction, "made work" of various sorts, and the carrying out of projects that would in ordinary times be postponed have been some of the means to which resort has been had. California and Pennsylvania established labor camps in which to accommodate the men given employment in such work. Such programs were of necessity primarily a community affair, although industrial enterprises and private citizens also helped by having repair and clean-up work done by persons who would otherwise have been unemployed.

Shortened Working Time.—Division or "spreading" of work was adopted as a policy by both employers and trade-union groups. Because of the depression, managements have temporarily introduced the 6-hour day and the 3, 4, or 5 day week. Surveys by the Bureau of Labor Statistics also showed a considerable increase in the extent to which the 5-day week has been adopted as a permanent policy. The "spread work" plan has been indorsed by many high public officials, and un-

doubtedly, as a temporary measure, has helped to reduce the miseries attendant upon long periods of unemployment. The weakness of the plan as a permanent measure is that, if wage rates remain the same as under the longer work week, the result will be to decrease weekly earnings, diminish purchasing power, and therefore reduce the demand for products. Everyone might have some work, but all workers would be living on a considerably lower standard than has been considered the "American standard." Possibly the most equitable procedure, under a permanent shorter-week policy, would be to increase wage rates enough partially to compensate for the time lost as a result of the reduced working time. Under such an arrangement both employees and management would share in the loss.

An interesting departure, and one with certain possibilities of future action, was the decision of the impartial chairman in the women's garment industry in New York City, in which he enunciated the principle that the introduction of labor-displacing equipment should be penalized by a forced contribution by the employer toward a fund to provide unemployment benefits for the workers displaced; he therefore levied a tax on each machine.

Unemployment Benefits and Relief.

—Although there is as yet no public system of insurance against unemployment in the United States, a first step in this direction was taken with the passage, in January, 1932, of a Wisconsin law providing for a compulsory system of unemployment insurance to go into effect July 1, 1933, unless a sufficient number of employers in the State have by that time voluntarily set up systems providing for unemployment benefits. Shortly after the passage of this act, the Interstate Commission on Unemployment Insurance (composed of representatives of the governors of Connecticut, Massachusetts, New Jersey, New York, Ohio and Pennsylvania) made its report. It recommended the compulsory establishment of state-

LABOR CONDITIONS AND ORGANIZATIONS

wide systems of unemployment reserves, in the custody of the State, the funds to be raised by contributions of each employer and credited to a separate account in his name. About the time this report was issued, the United States Senate authorized a study of unemployment insurance and appointed a committee for the purpose. Hearings were held and a special study of the subject was made for the committee by the Bureau of Labor Statistics. The report of the committee expressed the opinion that a Federal system would be inadvisable, but that the Federal Government might give encouragement to the idea by permitting employers maintaining systems of unemployment reserves to deduct such reserves from their taxable income.

Investigative commissions, appointed in three States (Connecticut, Massachusetts, and Ohio) to study the subject of unemployment insurance, have recently made their reports. That of Connecticut favored the formation of a compulsory, State-administered system of dismissal bonuses, rather than one of unemployment insurance. The Massachusetts commission recommended the establishment of compulsory unemployment reserves formed by contributions of employers and credited to their accounts. The Ohio commission, however, urged the passage of legislation establishing a state-wide compulsory system of unemployment insurance, under which all industries would be covered, both employers and employees would contribute, and all funds would be pooled.

The study made in 1931 by the Bureau of Labor Statistics of the various unemployment-benefit plans in the United States, mentioned above, revealed 16 plans maintained by industrial enterprises, 16 systems operated jointly by companies and trade-unions, and 48 local union plans. A similar study in 1932 showed that since the former study two additional company plans, two joint plans, and three trade-union plans have been set up. Four company systems, three joint agreements, and

5 trade-union plans have been given up, and in several instances the funds have been maintained only with great difficulty. Even in the cases in which discontinuance has been necessary, however, the plan is considered by the participants to have been of very real benefit. A new employment-guaranty plan was established, in the men's clothing industry of New York City, with the signing of an agreement guaranteeing 9 months' employment each year, to members of the Amalgamated Clothing Workers. Something in the nature of an employment guaranty was recently introduced on the Delaware & Hudson Railroad with the signing of "experimental agreements" by the carrier and the four train-service brotherhoods, which abolish for one year the mileage basis of wage payment and substitute therefor a guaranty of 240 hours' work for regular employees and 160 hours' work for extra or substitute employees, per month. Any time worked in excess of the guaranty is to be paid for at regular rates.

Other Measures. — Among the measures which, while not reducing unemployment, tend to alleviate its effects might be mentioned the growing tendency toward the payment of "dismissal compensation" to workers whom it is found necessary to discharge. A survey made by the Industrial Relations Section of Princeton University in 1931 showed 49 companies which had adopted such a plan; a similar study in 1932 showed 150 companies. Most of these plans have been the product of the depression period, well over half having been adopted during the past two years.

BENEFITS, INSURANCE AND RELIEF

Disbursements. — Very large sums are disbursed every year by labor unions, in the form of benefits and insurance for various purposes, such as for strikes, sickness, death, old age, certain diseases (such as tuberculosis), permanent disablement, unemployment, etc. In 1929, according

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to the report of the executive council of the American Federation of Labor, the total amount paid in trade-union benefits was \$32,242,446; in 1930 the amount rose to \$36,697,980; and in 1931 to \$39,961,873. These benefit payments, it is seen, have increased even in the face of the steadily decreasing union funds. This is true especially of the outlay for unemployment. The disbursement for such benefits, which in 1929 amounted only to \$276,718, had mounted in 1931 to \$9,146,724. Heroic efforts are being made by the labor organizations everywhere to take care of their unemployed members.

Reorganization.—While every effort is being made to continue the unemployment benefits, it has been increasingly evident to a number of unions that a thorough overhauling of their benefit system is necessary. Many such plans were established without proper study of the eventual drains upon the funds, and without provision for an actuarial balance between income and outgo. The shortcomings of the systems in this respect have become glaringly apparent during the past two-year period in which the benefit expenditures have continued or even increased, at the same time that union funds were decreasing. As a result, several organizations have already resorted to a drastic reorganization of their whole plan of benefits, but especially the pension systems. Among these are the railway conductors and the structural-iron workers. The locomotive engineers will consider the revision of their benefit system at their 1933 meeting, while the printers will submit theirs to referendum.

Care of Aged.—At the end of 1931 old-age pension legislation had been enacted in 17 States (California, Colorado, Delaware, Idaho, Kentucky, Maryland, Massachusetts, Minnesota, Montana, Nevada, New Hampshire, New Jersey, New York, Utah, West Virginia, Wisconsin, and Wyoming), and pensions were being paid in some or all of the counties in 15 States. At that time aid was being given under these laws to more than 76,000

aged, poor people, at an annual cost of over \$16,000,000.

Data as to the exact number of the public old-age pensioners at the end of 1932 are not yet available. The four States of California, Delaware, Massachusetts, and New York—which at the end of 1931 were paying pensions to 70,045 persons (more than 90 per cent of all the pensioners in the United States)—at the end of November, 1932 had a combined pension roll of 84,281 persons. In addition, New Jersey which began the payment of pensions on July 1, 1932, had a pension list of 7,254. It therefore seems safe to say that well over 90,000 aged persons were being cared for at the end of 1932 through the medium of old-age pensions.

LABOR AND ITS RELATIONS WITH MANAGEMENT

The year 1928 witnessed the occurrence of the smallest number of labor disputes (629) in any year since the Federal Bureau of Labor Statistics began its compilation of strike statistics in 1916. Since that time each odd year has shown a rise in number of disputes (to about 900), falling off again in the even years. Thus, in 1931 there were 894 strikes, of which 844 took place in the first 11 months; in the corresponding 11 months (January-November) of 1932, only 639 disputes took place. The principal strike industries are the building trades, clothing trades, coal mining and the textile trades; these accounted for 602 of the 894 strikes in 1931, and for 222,951 of the 279,299 strikers. In many instances strikes in these industries occur at the expiration of the collective agreements and are called in order to force the inclusion of certain provisions in the new agreements. In other industries, as in the printing trades and street railway transportation, in which the custom of arbitration is of long standing, disputed matters are generally referred to an arbitrator or board of arbitrators, and only rarely is resort had to a strike.

LABOR LEGISLATION

LABOR LAWS AND COURT DECISIONS

"Yellow Dog" Contracts.—In 1932 Congress enacted the Norris-LaGuardia Act, regulating strictly the issuance of injunctions in labor disputes and outlawing anti-union (the so-called "yellow dog") contracts. This law applies only to Federal courts, and the American Federation of Labor is urging that all its state and local affiliated bodies work for the passage of state legislation modeled upon the Federal act. Twelve States (Arizona, Illinois, Kansas, Minnesota, Montana, New Jersey, North Dakota, Oregon, Pennsylvania, Utah, Washington and Wisconsin) now have anti-injunction statutes, while six States (Arizona, Colorado, New Jersey, Ohio, Oregon and Wisconsin) have passed laws prohibiting the "yellow-dog" contract. The only instance in which this Federal Act has as yet received a court test occurred early in September, 1932, when the District of Columbia Supreme Court upheld the validity of the anti-injunction provisions in a case in which an employer sought to restrain striking members of the fur workers' union from picketing his establishment.

Convict-labor Law.—The Federal convict-labor law, the Hawes-Cooper Act, becomes effective Jan. 19, 1934, but, as in the case of the anti-injunction act, state legislation is also necessary. Such acts are already on the statute books of Illinois, Massachusetts, Maine, New Jersey, New York and Pennsylvania.

Federal Wage Scales.—The passage of a Federal Act, in March, 1931, providing for the payment of the "prevailing rates of wages" on all Federal building contracts involving an

amount in excess of \$5,000 was followed by the enactment of similar legislation in Alaska and a number of States (California, Illinois, Montana, New Jersey, Ohio, Pennsylvania, Texas, Washington, and Wisconsin). Of the four States (Arizona, California, Illinois and Texas) in which these acts have recently been tested in the courts, in all except California the law has been declared unconstitutional; in Texas, however, an appeal to the United States Supreme Court is planned.

Union Receivership.—A decision, which organized labor regards as very harmful to its interests, was that of the New York Supreme Court, late in December, 1932, placing in receivership a local motion-picture machine operators' union. This action was taken on the plea of four former officers of the local who had been removed on charges of misuse of union funds, and "racketeering."

Restraint of Trade.—Another interesting decision, but one favorable to organized labor, was that of the Superior Court of King County, Wash., holding as not in restraint of trade a provision in the collective agreement between the photo-engravers' union and their employers in Seattle by which the employers agreed not to sell photo-engravings below cost.

Union Labor.—Another judicial stand favorable to organized labor was that of the Superior Court of Massachusetts awarding the International Ladies' Garment Workers' Union damages against a Boston employer for violating his contract to employ only union labor. This is the second decision of this kind recently, a similar view having been taken by a New York court in 1931.

LABOR LEGISLATION

By IRENE OSGOOD ANDREWS

ASSOCIATE SECRETARY, AMERICAN ASSOCIATION FOR LABOR LEGISLATION

UNEMPLOYMENT RESERVES

Wisconsin Law.—Wisconsin en-

acted the first unemployment reserve law in America which will take com-

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pulsory effect July 1, 1933, unless employers of 175,000 employees establish approved voluntary plans by June 1, 1933. Employers will be required to pay two per cent of their payroll into a state fund, each employer's account to be kept separate. Benefits are limited to 50 per cent of weekly wages with a \$10 maximum and \$5 minimum and are payable for a maximum of 10 weeks within any one year. The act is administered by the industrial commission assisted by representative advisory committees.

Commissions. — During 1932, the Interstate Commission on Unemployment Insurance (representing Ohio, Pa., N. J., N. Y., Conn., R. I. and Mass.) and official state commissions in California, Massachusetts, New York and Ohio reported in favor of the compulsory establishment of statewide systems of unemployment reserves. The select Committee on Unemployment Insurance of the United States Senate submitted a report favorable to such legislation, and the American Federation of Labor at its 1932 convention endorsed compulsory unemployment reserves under state laws. Three additional state investigating commissions were created in Illinois, Louisiana and Pennsylvania.

WORKMEN'S COMPENSATION AND VOCATIONAL REHABILITATION

Minor amendments to existing laws were made in Massachusetts, New Jersey, New York and Virginia including, in New Jersey, a provision exempting newsdealers and their carriers, and in New York, provisions for possible recovery of partial earning capacity of an employee totally disabled by a second injury, and for safeguarding the liability of a former self-insurer. Congress extended the Federal Vocational Rehabilitation Act to 1937 with an annual appropriation of \$1,000,000.

OLD AGE AND RETIREMENT LAWS

Massachusetts and New Jersey made minor amendments to their existing Old Age Security Acts, and in Massachusetts an investigation was authorized into the advisability of

lowering the minimum eligible age for pensions now standing at 70 years. In Missouri a constitutional amendment, permitting passage of an Old Age Pension Act, was ratified at the November election. Retirement acts were amended in several states.

HOURS OF LABOR

Arizona limited the hours of motor-passenger-vehicle operators and Massachusetts amended the women and children's hour law and authorized an investigation relative to the advisability of extending the one-day-rest-in-seven law. In New York, consecutive service of interurban motor truck and bus operators was limited to ten hours with eight-hour rest intervals and Congress directed the Interstate Commerce Commission to investigate the advisability of a six-hour day for railroad employees.

EMPLOYMENT

Kentucky established in the labor department a state public employment service and the District of Columbia private employment agency law was strengthened with an increase in the annual license fee from \$25 to \$100. Congress enacted the Emergency Relief and Construction Act of 1932, including \$322,224,000 for public works. Funds for emergency relief were likewise provided in a number of states, and Illinois, Ohio and Pennsylvania created emergency relief commissions. Preference to citizens in employment on public works was a subject of legislation in four states.

SAFETY AND HEALTH

Minor amendments to child labor laws were made in a few states and New Jersey prohibited the employment of minors in any occupation considered harmful by the Commissioner of Labor. Kentucky prescribed safety regulations for oil wells and coal mines, and in New York certain safety regulations were extended to excavations connected with building construction.

COLLECTIVE BARGAINING

Congress drastically restricted the issuance of injunctions by Federal courts in labor disputes, declared the

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"yellow-dog" contract to be contrary to public policy and unenforceable in any court of the United States and required jury trials in contempt cases. In Louisiana, existing provisions gov-

erning arbitration of disputes between persons were extended to apply to certain industrial disputes and in New Jersey, "yellow-dog" contracts were declared void.

LABOR IN POLITICS

BY DAVID J. SAPOSS

BROOKWOOD LABOR COLLEGE

THE VOTING RECORD

Party Showing.—Although the independent parties that cater to labor gained in votes in the presidential election, they have not added sufficient votes to their credit to make them an effective opposition. The vote of the six minor parties tripled when compared with the previous presidential election, but their total will hardly hit the million mark. However, the distribution of votes among these parties was uneven. The Socialist party received the lion's share of the protest votes, being credited in the incomplete returns with over 800,000. The Communist party ran a poor second with less than 70,000 votes. When the complete returns come in the Socialist party may have regained its proportionate standing of 1920, when it polled 3.2% of the total vote. It will still, however, be far behind its 1912 record, having registered then 6% of the total vote cast. As compared with the .7% it received in 1928, the 2.3% of the total vote in 1932 is, of course, a tremendous gain.

Minnesota Results.—The bright spot of independent political action is still Minnesota. Last spring the Farmer-Labor party elected most of its municipal ticket in St. Paul. In the fall election the Farmer-Labor party carried the state, losing only the state secretaryship. In conjunction with the Democrats it will probably control the state legislature.

FEATURES OF THE CAMPAIGN

Interest of Professional and Intellectual Classes.—A feature of the last political campaign was the intense interest of professional and middle class

groups in radicalism and independent political action. Social workers, women's clubs and religious associations have questioned the efficacy of capitalism and have even gone so far as to repudiate the profit motive. In so far as these elements expressed themselves for independent political action they leaned heavily towards the Socialist party. Similarly in the college student straw votes Thomas ran neck in neck with Roosevelt, except in the South where he contested with Hoover for second place. Like results were recorded by the polls of college faculties. Both the Communists and Socialists had their committees of intellectuals consisting of outstanding individuals. An analysis of the personnel of these committees reveals that the Communists attracted more from those belonging to the artistic and esthetic groups, such as novelists, playwrights and artists. The Socialists, on the other hand, drew more of their intellectual supporters from the professional and learned groups as ministers, lawyers, academicians and publicists.

Non-Partisan Aspect.—While the advocates of independent political action acknowledge that they did not make a very good showing, the labor elements that subscribe to the non-partisan political policy claim a great victory. In the presidential contest the American Federation of Labor declared itself neutral, as it did in 1928. However, it pursued its non-partisan policy in the Congressional and other elections. The Democratic and Progressive landslide brought about the election of the largest number of candidates endorsed by the

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Federation since the first election of Woodrow Wilson in 1912. There is no doubt that labor will receive more favorable consideration than it has since the Harding administration.

Party Affiliation.—The confusion which usually arises in connection with the non-partisan policy was more vividly manifest in the recent election. The outstanding leaders, both local and national, were divided. While there is no doubt that the great majority supported the Democratic ticket, nevertheless a very substantial number of the leaders supported the Republican party. Another event which complicated the situation in so far as the non-partisan policy of the Federation was concerned was the activity of the Wage Earners' Protective Conference, which was founded to further high tariffs, and which is headed by a vice-president of the Federation. This Conference endorsed candidates that were opposed by the Federation's Non-Partisan Committee.

FEDERATION OF LABOR POLITICAL POLICY

The repudiation by the Federation of its traditional policy of voluntarism by endorsing such paternalistic legislation as compulsory unemployment insurance, has raised the question whether this will lead it ultimately to repudiate its traditional non-parti-

san political policy. Since the Federation formulated its philosophy in the 1890's, a cardinal policy to which it adhered persistently was to ask only for negative legislation, which would protect the labor market and prevent government agencies from interfering with the vital union activities. It thus demanded restriction of immigration and anti-injunction laws. It opposed legislation that would do anything for the workers because it felt that the workers should be taught to rely exclusively upon the unions. In asking only for negative legislation the unions made few important demands so that the non-partisan policy proved more or less satisfactory. There is a feeling that in demanding positive or paternalistic legislation the non-partisan policy will not suffice, and the Federation will find it necessary to turn towards independent political action. This has been the experience of trade union movements of other countries. Indeed, it is exactly what happened in this country immediately following the war. Then labor, led by the railroad unions, first demanded positive legislation and finally turned to independent political action in sponsoring the presidential candidacy of LaFollette in 1924. The ensuing "unprecedented period of prosperity" led the unions to revert to their old political policy.

EMPLOYMENT CONDITIONS

BY SUMNER H. SLICHTER

PROFESSOR, HARVARD UNIVERSITY

EFFECTS OF THE BUSINESS DEPRESSION

Manufacturing and Mining.—The depression apparently reached bottom in July of 1932 when the output of manufactures and minerals was 44 per cent below the 1923-1925 average, and 54.5 per cent below the high of September, 1929. It was even 12.5 per cent below the low of the depression of 1921. In manufacturing, employment fell about 20.7 per cent between September, 1931 and July,

1932; in anthracite mining, 46.9 per cent; in bituminous mining, 27.1 per cent, and in metalliferous mining, 46.9 per cent. By October, 1932, employment had recovered so that it was 13.1 per cent below October, 1931 in manufacturing, 26.4 per cent in anthracite mining and 17.6 per cent in bituminous mining. In metalliferous mining, however, there was practically no recovery, and employment in October, 1932 was 43.3 per cent below October, 1931. The low point in the summer

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of 1932 was brought about by an acute financial panic. After this subsided in July, there was a sharp recovery in factory output. A seasonal gain in factory output usually occurs during the late summer and early fall. Nevertheless, unusual significance attaches to the gains between July and October, 1932, because both in the fall of 1931 and in the spring of 1932 the downward course of the depression was so severe as to prevent the usual seasonal increases in factory output. At the time of writing there are many reasons for believing that the low of the depression has passed.

The gain in factory employment during the late summer and early fall was confined in the main to consumers'-goods industries, particularly to textiles and shoes. In cotton textiles, for example, employment increased 36.8 per cent between July and October, and in boots and shoes 10.2 per cent. In fact, in textiles, employment in October, 1932, was 2.4 per cent above October, 1931. There was some recovery in capital-goods industries also—for example, in the iron and steel industry employment increased 2.5 per cent between July and October, but the extent to which the depression concentrated in the capital-goods industries is shown by the following examples:

Drop in Employment
September, 1929, to
September, 1932
Per cent

Iron and steel.....	46.7
Lumber and its products.....	58.8
Machine tools.....	77.6
Electrical equipment.....	60.3

In the consumers'-goods industries making luxury products, however, the drop in employment has in some instances been as severe as in capital-goods industries. In the automobile industry, for example, employment in September, 1932, was 60.8 per cent below September, 1929.

Building Construction.—The depression in the building trades, which was unusually severe even in 1931, became increasingly so in 1932. Residential contracts, which in 1931 were 57.6 per cent below 1929, up to Dec. 1, 1932, were 65.5 per cent below the

corresponding period in 1931. The Federal Government expanded public construction during the year, but the collapse of the bond market in the spring and the wave of economy caused local communities and states drastically to curtail their building programs. It is estimated that, for 1932, public construction, other than Federal, will be only about one-third of 1931—about \$800,000,000 against \$2,500,000,000. Nevertheless, so precipitous was the drop in private construction that even the small volume of public construction in 1932 represented over half of all construction.

Railroads and Farms.—The continued drop in railroad traffic meant that the railroads of the country, taken as a whole, operated at a loss during each of the first three quarters of 1932. The drastic curtailment of service and maintenance, which had been going on throughout 1931, was carried to still greater extremes. In September, 1932, railroad employment dropped to 19.5 per cent below September, 1931, and 42.4 per cent below September, 1929. On the other hand, the return to the farm, which began on a small scale in 1930 continued at an increased rate. The Department of Agriculture estimated that the net movement from city to farm was 263,000 during the first three months of 1932, and that before the end of the year it would equal the gain of 656,000 which took place during 1931. This, of course, represents, not an increase in the demand for farm labor, but rather a movement of unemployed city workers back to their homes. Should the movement back to the farms be as large during 1932 as the figures of the first three months indicate, the farm population on Jan. 1, 1933 would be higher than at any time since January, 1920 and only 200,000 below the 1910 estimate of 30,076,960.

Public Utilities, Trade and Hotels.—Among the steadiest branches of business are public utilities, wholesaling and retailing and hotels, all of which cater to a demand which is immediate and which cannot be easily postponed. Nevertheless, falling demand put all of these industries under great pressure to reduce expenses, to

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cut down on maintenance and repairs, and to delay extensions and improvements. As a result, employment fell off in most instances more than during the preceding year as the following table shows:

	Decrease between Septem- ber, 1930 and Sep- tember, 1931	Decrease Between Septem- ber, 1931, and Sep- tember, 1932
	Per cent	Per cent
Telephone and Telegraph..	12.3	8.9
Power and light.....	9.9	14.5
Electric railroads and motor-bus.....	8.5	12.5
Wholesale trade.....	9.1	10.5
Retail trade.....	5.9	10.2
Hotels.....	9.5	15.0

VOLUME OF UNEMPLOYMENT

Trends and Comparisons.—Satisfactory figures on the volume of unemployment are lacking. It is necessary to construct estimates on the basis of the census in April, 1930, and the special census in 19 important cities early in 1931, and the employment returns from different industries. In July, 1931, the National Industrial Conference Board estimated the volume of unemployment at 7,213,497. In October, 1932, most estimates placed the volume of unemployment at about 11,000,000.

Trade Union Returns.—The returns of the American Federation of Labor show the following unemployment rates among trade union members:

TRADE UNION RETURNS

	All	Building	Printing	Metal	Other
Jan.-Oct., 1919.....	11.5%	24.8%	3.9%	6.6%	8.0%
Jan.-Oct., 1930.....	21.5	39.0	6.4	19.3	13.7
Jan.-Oct., 1931.....	25.9	50.6	12.1	29.6	16.4
Jan.-Oct., 1932.....	31.6	63.4	18.9	41.0	19.9

Part-time Employment.—In this depression, more than in any preceding one, there has been a tendency to avoid lay-offs by spreading work. As the depression has continued, the proportion of workers on part time has increased. The tendency to introduce part time has been most pronounced in manufacturing industries. For example, reports of the National Industrial Conference Board for October, 1932, indicate that the average working hours among 21 industries were 36.4 hours per week. In banking, insurance, wholesaling and retailing and in the public utility industry there has been relatively little spreading of work. Naturally, spreading has been most pronounced in those industries in which the drop in demand has been greatest. An investigation of 20 industries by the United States Department of Labor indicates that the following percentages of workers worked only part time during March, 1932:

	Per cent
Average for all industries.....	56.1
Manufacturing industries only	63.0
Electric railways.....	4.0
Steam railroads.....	22.3
Food.....	26.6
Iron and steel.....	79.3
Rubber.....	84.9
Machinery.....	84.9

EFFORTS TO RELIEVE OR REDUCE UNEMPLOYMENT

Activities of the Reconstruction Finance Corporation.—Although more organized effort has been made to relieve unemployment in this depression than in any preceding one, the failure of the nation's leaders to visualize the need has resulted in each organization being scrapped about a year after its establishment. During the winter of 1930-1931, for example, leadership in organizing unemployment relief was in the hands of the so-called Woods Committee. This committee was succeeded in the summer of 1931 by the Gifford Committee, which functioned during the winter of 1931-1932. During the early part of 1932 a determined effort was made to induce Congress to appropriate Federal funds for relief. In the main, it failed, although Congress did give the Red Cross 85,000,000 bushels of government wheat for distribution as stock feed and as food for unemployed. As the depression has gone from bad to worse, the relief load has rapidly increased. Indeed, records from several hundred communities indicate that the loan has approximately

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doubled each year. Only eight states—but including the industrially important ones of New York, New Jersey, Pennsylvania, Ohio, Illinois and Wisconsin—had made state funds available to local communities. By the summer of 1932, it became evident that the local communities could no longer bear the entire burden, and Congress appropriated \$300,000,000 for the Reconstruction Finance Corporation to loan to the states and local communities. In making this appropriation Congress provided that Federal relief funds should not be in lieu of money made available by the various states and their political subdivisions, but rather should be supplementary thereto. Consequently, the Corporation has followed the policy of making grants for short periods and in limited amounts only, and of insisting that states and localities do what they can to help themselves. At a conference on relief called by President Hoover in September, 1932, Mr. Pomerene, Chairman of the Reconstruction Finance Corporation, announced that he interpreted the law to mean that the \$300,000,000 should be made to last two years. Conservative estimates indicate, however, that even if the local communities raise as much in 1933 as in 1932, more than the Reconstruction Finance Corporation's \$300,000,000 will be required before June 30, 1933 merely to meet the increase in the relief needs of the country. Unless there is a rapid and even spectacular revival of business, a development which does not appear likely, Congress will be required to make substantial additional provision for the relief of unemployment during the winter 1933-1934.

Spreading Work.—Both the Woods and the Gifford committees urged employers to divide the work rather than lay off men. In September, 1932, however, there began a greatly intensified drive to spread work under the leadership of a committee headed by President Teagle of the Standard Oil Company of New Jersey. Subsidiary committees were established in each state with representatives of all important industrial groups. A particular effort

was made to induce retailers, wholesalers, banks, and public utilities to create more jobs by reducing the working hours of employees. When the plan was launched, Mr. Teagle announced that it might put 1,000,000 men back to work and expressed the hope that it might eventually give jobs to 2,000,000. The committees have conducted a vigorous campaign and have accomplished much good. The results, however, have been disappointing. The principal effect of the movement has been to prevent lay-offs rather than to create new jobs. In other words, the increase in unemployment has been retarded but unemployment has not been reduced. Most firms are willing to divide work rather than make lay-offs, but are opposed to reducing the hours of their men in order to give jobs to persons who are unemployed. Even after three years of cutting and economizing many concerns are still carrying more employees than they really need. Furthermore, many workers who have full-time jobs are supporting relatives. It is a serious matter to reduce the working hours of a fifteen-dollar-a-week clerk who may be the sole member in her family who has a job. Particularly disappointing has been the failure of the "spread-work" committees to induce employers to keep down working hours and hire more employees during the revival in the textile and the shoe industries in the fall of 1932. Because business enterprises are likely to be cautious for some time in making expenditures on replacements, extensions and improvements of plant, we are likely to be confronted for a year or more with a very grave absorption problem. Only well organized and vigorous action will prevent business enterprises from increasing working hours rather than hiring more men when business picks up.

PERMANENT CHANGES

The year 1932 will be noteworthy for important beginning steps in making permanent provision for dealing with unemployment. The movement to establish community employment offices administered by experts, which started in Rochester in 1931, spread

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to Philadelphia early in 1932. Especially noteworthy was the passage by Wisconsin of the first compulsory unemployment reserve act in the United States. Furthermore, commissions in Ohio and Massachusetts recommended the passage of compulsory unemployment reserve acts, and a Connecticut Commission recommended a compulsory dismissal wage. Although the American Federation of Labor had been careful not to declare itself against unemployment reserves, it had declined both at Boston in 1930 and at Vancouver in 1931 to declare

itself in favor of them. At Vancouver, however, the Convention stated that unless provision were made for stabilizing employment and assuring men of work the labor movement would be compelled to demand compulsory unemployment reserves. At the Cincinnati Convention in November, 1932, the Federation adopted compulsory unemployment reserves as one of its demands. Although the Convention did not endorse a specific plan, it did outline some of the main features of the plan which would be satisfactory to organized labor.

MEDIATION AND ARBITRATION IN INDUSTRIAL DISPUTES

BY CHARLES E. BALDWIN

ACTING COMMISSIONER OF LABOR STATISTICS, DEPARTMENT OF LABOR

ADJUSTMENTS IN INDUSTRY

During 1932 no new machinery was established for the settlement of industrial disputes through mediation or arbitration. The U. S. Board of Mediation disposed of about 400 cases during the fiscal year ended June 30, 1932. In the majority of these cases a small number of employees were affected. One emergency board was appointed and reported its findings to the President of the United States. The Industrial Commission of Colorado received several requests from employers for a reduction in the wage scale of their employees, most of which were disapproved by the Commission. Typographical workers of Syracuse, Cleveland and San Diego and photo-engravers of New York City submitted wage disputes with their employers to arbitration.

RAILROAD LABOR MEDIATION

Procedure in Disputes.—The U. S. Board of Mediation was constituted under the terms of the Railroad Labor Act of 1926, to handle cases of dispute which the carriers and their employees were unable to settle in conference. In such cases the law directs that the Board of Mediation shall endeavor to induce the parties to submit their controversy to arbitra-

tion. In case all these efforts fail, and the Board of Mediation believes the controversy may result in serious interruption of interstate commerce, the President of the United States may appoint an emergency board to make an investigation and report. There is, however, nothing savoring of compulsory arbitration in the act. Thus far five emergency boards have been appointed.

Work of the Board of Mediation.

—The Board began operations in July, 1926, since which time 728 cases involving changes in rates of pay, rules, or working conditions have been submitted. During this period the Board has also received 878 cases involving grievances or differences arising out of the interpretation or application of existing agreements concerning rates of pay, rules, or working conditions, which have not been decided by an appropriate adjustment board by which they had been considered. The sixth annual report of the Board of Mediation covering the year July 1, 1931 to June 30, 1932, shows that in this period the Board acted upon 170 cases involving rates of pay, rules, or working conditions. Forty-five were settled through mediation, 4 were submitted to arbitration, 69 were withdrawn through mediation, 47 were re-

MEDIATION AND ARBITRATION IN INDUSTRIAL DISPUTES

tired because of refusal to arbitrate, and 5 were closed by action of the Board. During this fiscal year the Board acted on 234 cases involving grievances or differences arising out of the interpretation or application of existing agreements concerning rates of pay, rules, or working conditions. Of these 234 cases, 94 were settled through mediation, 47 were submitted to arbitration, 59 were withdrawn without mediation, 33 were retired, and one was closed by action of the Board. Of the total of 1,606 cases of all characters thus far received and accepted by the board for mediation, 1,317 cases have been disposed of as follows: Mediation agreements, 515; establishing agreements to arbitrate, 229; withdrawals in process of mediation, 370; withdrawals by parties before mediation was instituted, 35; withdrawals in process of investigation, 16; withdrawals for arbitration, 5; retired or closed by board action (cases impossible of conclusion including refusals to arbitrate), 147 cases. At the close of the fiscal year ended June 30, 1932, there remained 289 cases unassigned to mediation.

Louisiana & Arkansas Case.—The fifth emergency board appointed by the President, March 10, to investigate the wage dispute between the Louisiana & Arkansas and the Louisiana, Arkansas & Texas railways and their engineers, firemen, conductors, trainmen, and shopmen, reported its findings to the President March 29. Several disputes, or questions in difference, were submitted to this board. For the sake of clearness these complaints were separated. In the case of the shop employees arbitration was recommended. The wage cut for the engineers, firemen, conductors and trainmen was the second cut in less than one year, and the board recommended that at least the second cut be withdrawn.

INDUSTRIAL MEDIATION

Federal.—The work of the Conciliation Service of the Department of Labor is that of mediation in labor disputes. The representative of the Conciliation Service generally enters

the labor controversy at the request of the parties concerned or at the invitation of the public affected by any individual dispute. The first step of the representative is to learn the grievance of each side and the aims for which it is contending. All these mediatorial efforts are directed toward the adjustment of disputes while operation continues. During the fiscal year ended June 30, 1932, 759 cases of trade disputes, strikes, threatened strikes, and lockouts were handled by the Conciliation Service. Of this total number, which includes 19 cases that were pending at the close of the fiscal year ended June 30, 1931, 659 were satisfactorily adjusted. These cases came from 45 States and the District of Columbia, and involved 449,169 employees directly and indirectly. Since the creation of the Department of Labor in 1913, the Conciliation Service has handled 10,946 labor disputes, involving directly and indirectly 13,868,072 employees.

State.—The Industrial Commission of Colorado, created in 1915, is charged with certain duties as to arbitration and mediation. During the year 22 requests were received by the Commission from employers for a reduction in the wages of their employees. The Commission disapproved 16 requests for wage reduction, approved the reduction requested by 4 employers and approved a smaller reduction than requested by 4 employers.

INDUSTRIAL ARBITRATION

Printing Trades.—Among various printing unions arbitration as a method of settling disputes with their employers has been long established. The decision of the arbitrator in the wage dispute between the Syracuse newspaper publishers and Local No. 55 of the Typographical Union reduced the weekly pay of men on day work from \$49 to \$46, and of those on night work from \$52 to \$49, the award to become effective April 17, 1932. In the wage dispute between the newspaper publishers of Cleveland and Typographical Union No. 53, the award rendered July 27, 1932, by the chairman of the arbitration board, reduced the weekly pay of

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men on day work from \$53.55 to \$51.07; night work from \$58.95 to \$56.25; and those on lobster shift from \$60.48 to \$57.54. This award was made effective for 15 months from and after July 1, 1932. In the wage dispute between two San Diego newspapers and Typographical Union No. 221, the publishers had requested a 20 per cent reduction in the wage scale. The parties agreed to arbitrate the wage scale and that the scale awarded should be effective from June 1, 1932, to May 31, 1933. The arbitrators were in agreement that technological unemployment can not be remedied except by reducing the workers' regular hours of labor so that more men in each skilled trade may find employment. The award made the following changes in the wage scale and working hours per week: For day work from \$51 for 45 hours to \$39.50 for a five-day week of 37½ hours; for night work from \$54 for 45 working hours to \$41.65 for a five-day week of 37½ working hours. An arbitration board which

considered the request of the Publishers' Association of New York City for a reduction of 20 per cent in the wage scale of their photo-engravers, on June 30, 1932, made an award reducing the wage scale of the photo-engravers 12 per cent. Under this award night workers receive \$70 a week and day workers \$62.50.

Milk Wagon Drivers.—In February, 1932, the dairy companies of St. Louis, Mo., and Milk Wagon Drivers' Union No. 603 agreed to arbitrate a dispute as to a proposed reduction of 8 per cent in the minimum weekly wage scale of the milk-wagon drivers employed by the dairy companies. The majority of the board agreed that the companies were justified in making an 8 per cent reduction in the weekly wage scale of their drivers, as fixed by the contract expiring November 1, 1931, the commission to be paid drivers as provided for in the expired contract, to remain the same. The new wage scale to be in effect from March 1, 1932, to March 1, 1933.

CHILD LABOR

BY COURTENAY DINWIDDIE

GENERAL SECRETARY, NATIONAL CHILD LABOR COMMITTEE

OCCUPATIONAL DISTRIBUTION

Figures from the United States Census of 1930, made public during

the year, give the number of children gainfully employed in each occupational group as follows:

Occupation	10-15 Years	16-17 Years	10-17 Years, Inclusive	
			No.	Per Cent
Agriculture.....	469,497	506,071	975,568	45.5
Forestry and fishing.....	1,562	5,808	7,370	0.3
Extraction of minerals.....	1,184	18,412	19,596	0.9
Manufacturing and mechanical industries.....	68,266	397,985	466,251	21.7
Transportation and communication.....	8,717	66,338	75,055	3.5
Trade.....	49,615	138,348	187,963	8.8
Public service.....	485	4,266	4,751	0.2
Professional service.....	4,844	23,075	27,919	1.3
Domestic and personal service.....	46,145	163,159	209,304	9.8
Clerical occupations.....	16,803	155,379	172,182	8.0
ALL OCCUPATIONS.....	667,118	1,478,841	2,145,959	100.0

NEW LEGISLATION

Louisiana amended its child labor law by providing for temporary work permits for children with physical defects, pending correction of the de-

fect; by establishing a sixth grade educational requirement for children between 14 and 16 years of age leaving school for work in New Orleans; and by providing for the appointment

of a vocational counsellor and a safety engineer by the City of New Orleans. An amendment to the Louisiana school law requires all children in the Parish of Orleans to attend school until they are 16, regardless of grade, unless they are over 14 and legally employed. A new act empowers incorporated cities and towns in Louisiana to establish continuation schools for employed boys under 16 years and employed girls under 18 years, with attendance required 144 hours a year.

Massachusetts, New York and New Jersey.—Measures passed in other states include an act strengthening the tenement home work law as it relates to minors in Massachusetts; additional protection against dangerous occupations for minors between 16 and 18 years of age in New Jersey; and a New York bill providing for the transfer of court cases involving compulsory education from the Municipal Term Courts to the Children's Court in New York City.

Indiana, in special session, passed a bill weakening the compulsory school attendance law by making the appointment of attendance officers in rural counties and small cities optional with county school boards instead of being mandatory as hitherto. Where no attendance officer is appointed, the trustee of a township or the school superintendent is to act as attendance officer *ex officio*. This measure represents a minimum compromise following drastic efforts to abolish school attendance machinery throughout the state.

Rejected Bills.—Important measures which failed of passage included bills to prohibit night work or to reduce working hours for minors, or for girls over 16 and women, in Kentucky, Louisiana, Massachusetts, Rhode Island and South Carolina; bills raising the minimum age for employment and the age for compulsory school attendance from 14 to 16 years in Massachusetts and New York; bills improving the status of minors under the workmen's compensation laws in Louisiana, Massachusetts, and Virginia and one to introduce a system of workmen's compensation in South

Carolina; and proposals to ratify the Federal Child Labor Amendment in New Jersey, New York, and Rhode Island. Many undesirable bills were also defeated, including a proposal made in a special session of the West Virginia Legislature to reduce the minimum school term required by law from 8 to 6 months.

District of Columbia.—A bill in the United States Congress which would if enacted weaken the child labor law of the District of Columbia by allowing children of any age to obtain permits to appear on the stage in the District of Columbia, was reported with amendments in the House of Representatives, but did not reach a vote in the first Session of the Seventy-second Congress.

RESEARCH

School Attendance and Child Labor.—A method of research whereby the primary data are gathered by local organizations and, when completed, are correlated and analyzed by the Committee, was initiated along two different lines by the National Child Labor Committee. The first took the form of a study of school attendance and child labor conditions, which was carried on in Georgia by the State Parent-Teachers Association. Requests for the questionnaire were made in Missouri, Mississippi, and South Carolina. The Committee cooperated in a similar study carried on in Indiana by several cooperating groups.

Leaving School for Work.—The second project was based on local surveys of the experiences, over a number of months, of children under 18 years of age who had dropped out of elementary or high school during the depression presumably for work. This was undertaken in twenty or more widely scattered communities by schools of social work and departments of sociology or economics in universities, in cooperation with the National Child Labor Committee. The study is expected to provide data on the types of jobs open to children of various ages, conditions under which they work, extent of idleness, and what the communities are actu-

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ally doing to meet the need of these children for guidance and training.

Industrial Injuries.—A study of the subsequent history of children receiving industrial injuries resulting in permanent partial disabilities, similar to that completed during the preceding year in Tennessee and Illinois, was carried on by the National Child Labor Committee in Wisconsin during the year through an intensive analysis of the Industrial Commission and State Rehabilitation Service records covering a period of four years, supplemented by personal interviews. The Children's Bureau of the Department of Labor continued its study of the employment of minors in hazardous occupations, and had also in preparation a report on employed boys and girls in Rochester and Utica, N. Y.

Health Survey.—The United States Public Health Service continued its survey of the extent to which employed minors are exposed to industrial dusts and poisons, through a study of state records, a canvass of trade unions and other labor organizations, and a supplementary study of 1930 Census data.

Causes of School Withdrawals.—The Department of Economics of Smith College conducted a study of the causes of early school leaving covering only children who were normal or accelerated in their school progress, in order that economic and other factors might be given full weight uncomplicated by the effects of retardation in school. The investigation was completed in several Massachusetts cities, and a comparative study begun in Alabama.

NEW PUBLICATIONS

Reports of interest in the field of child labor published during the year include:

United States Children's Bureau,
Washington, D. C.

Employed Boys and Girls in Milwaukee.

Employment of Mentally Retarded Children.

Illegally Employed Minor and the Workmen's Compensation Law, The.

Memorandum on Transient Boys.
(Mimeographed.)

Nineteenth Annual Report of the Children's Bureau.

"Report of the Advisory Committee on Employment of Minors in Hazardous Occupations." *Monthly Labor Review*, Dec., 1932.

"Trend of Child Labor in the United States—1921 to 1931." *Monthly Labor Review*, Dec., 1932.

Welfare of Children of Maintenance-of-Way Employees.

National Child Labor Committee,
New York, N. Y.

American Child, The (Published monthly).

Child Labor Facts (Revised, 1932).

"Children Hurt at Work," *Monthly Survey*, July, 1932, by Gertrude Folks Zimand.

For the Child.

Where Work Begins: Answers to Some Questions on the Employment of Children.

Summary of Street Trades Study in Detroit, Michigan (Mimeographed).

National Consumers' League, New York, N. Y.

Standards for Workers in Southern States, by Lucy Randolph Mason.

White House Conference on Child Health and Protection.

Child Labor. Published by the Century Company, New York, N. Y.

Special state reports include the following:

Connecticut.

Women in the Sewing Trades in Connecticut. Preliminary Report. United States Women's Bureau, Washington, D. C.

New York.

Children on the Stage. Juvenile Protective Department, Children's Aid, Buffalo, N. Y.

Newsboys of New York. By Harry M. Shulman. New York Child Labor Committee, N. Y. C.

The Social Aspects of the Administration of the Double Compensation Laws in New York State. State Department of Labor, Albany, N. Y., Division of Women in Industry.

WORKMEN'S COMPENSATION AND INSURANCE

Ohio.

Out of School—Out of Work. Consumers' League of Cincinnati.

Oregon.

"Federal Regulation of Child Labor in Oregon," by Luther S. Cressman and Edna C. Spenker. *Commonwealth Review*, July, 1932. University of Oregon, Eugene, Oregon.

Pennsylvania.

"Reducing the Hazards of Employment for Boys in the Coal-Mining Industry." State Department of Labor and Industry, Bureau of Women and Children. *Industry and Labor*, Aug., 1932.

Wisconsin.

"Apprenticeship in Wisconsin, 1911-1931," *Wisconsin Labor Statistics*, July 18, 1932.

WORKMEN'S COMPENSATION AND INSURANCE

BY JOHN B. ANDREWS

SECRETARY, AMERICAN ASSOCIATION FOR LABOR LEGISLATION

LEGISLATION

Outstanding in the field of social legislation of 1932 was the enactment by Wisconsin of America's pioneer unemployment reserve law. Official investigating commissions in a number of additional states recommended the adoption of compulsory unemployment reserve funds. Workmen's accident compensation legislation was for the most part of minor character. In South Carolina, following a petition signed by representative citizens urging the adoption of the workmen's compensation principle, a bill was introduced but no action was taken. Four states—Arkansas, Florida, Mississippi and South Carolina—still remain without this modern protection for industrial accidents. In Arkansas, Florida and South Carolina, which meet in regular legislative session in 1933, efforts for legislation will be continued. Significant was the introduction in the U. S. Senate of a Federal compensation bill covering interstate commerce employees, including in addition to railway workers, pullman porters, express company employees, bus operators and airplane pilots. Interstate commerce employees constitute the largest single group of workers without workmen's compensation protection.

WORKMEN'S COMPENSATION

The Massachusetts law was amended by minor changes in enforcement

provisions respecting public employees, court proceedings and the effect of compensation agreements on the finality of findings by the board. In New Jersey, newsdealers and their carriers were exempted from the law and all appeals now go to the Court of Common Pleas instead of the Supreme Court. In New York, provision was made for possible recovery of partial earning capacity of an employee totally disabled by a second injury and for safeguarding the liability of a former self-insurer; proof of insurance of municipal contractors must now be approved by the Industrial Commissioner; lien of compensation against an employer's assets is subordinated, and counties may now include compensation to volunteer firemen within their mutual insurance plan. The Virginia act was amended to exclude horticultural workers, to raise the total maximum limit to \$5,600, to limit review of awards to twelve months, and to penalize wage deductions.

VOCATIONAL REHABILITATION

Congress extended the Federal vocational rehabilitation act to 1937 with an annual appropriation of \$1,000,000. Delaware, Kansas, Vermont and Washington are the only states which have thus far failed to enter into the cooperative educational plan for vocational retraining of cripples.

OLD AGE PENSIONS

Minor amendments to existing old age security laws were made in Massachusetts and New Jersey and an investigation was authorized in Massachusetts into the advisability of lowering the minimum eligible age for pensions. In Missouri, a constitutional amendment permitting the enactment of an old age pension act was ratified by referendum Nov. 8.

UNEMPLOYMENT RESERVES

Legislation.—The Wisconsin unemployment reserve law will take compulsory effect July 1, 1933, unless employers of 175,000 employees by June 1, 1933, adopt state-approved voluntary plans. Employers of ten or more persons for four or more months during preceding calendar year with certain exceptions must pay two per cent of payroll into a state fund, each employer's account to be kept separate and his liability limited to the amount of his account; percentage reduced as reserve per employee attains specified amounts. After reserve funds accumulate for one year, benefits are paid following two weeks' waiting period to a worker meeting prescribed qualifications in proportion to his recent wage and length of service. Weekly benefit for total unemployment limited to 50 per cent of weekly wage with a \$10 maximum and \$5 minimum. An employer submitting approved plan is exempted from certain provisions. The act is administered by the industrial commission assisted by representative advisory committees. Disputed questions are settled by local, representative boards with appeal to the commission and from it, in certain respects, to the courts. Special emphasis is given to furnishing jobs rather than benefits, and to the regularization of employment. Administrative expenses are defrayed by employers' contributions of not more than two-tenths of one per cent of payroll.

COMMISSIONS

The Interstate Commission on Unemployment Insurance, representing the governors of seven states, reported Feb. 15 in favor of the compulsory establishment of state-wide

systems of unemployment reserves. It recommended the payment of two per cent of payroll by each employer to constitute the unemployment reserve of his firm to be so separately treated in the accounts, and his financial responsibility to be limited by the amount of his unemployment reserve. The maximum rate of benefit recommended is 50 per cent of wages or \$10 per week, whichever is lower, with a maximum payment of benefit of 10 weeks within any twelve months. When the accumulated reserve per employee exceeds \$50 the employer's contribution is reduced to 1 per cent until the reserve has reached \$75 when payments cease. The state is to act as the custodian, investor, and disbursing agent of the reserve funds and take prompt steps to extend its public employment service. The unemployment authority is to create stabilization agencies.

California.—The State Unemployment Commission recommended compulsory unemployment reserves and submitted a bill following closely the recommendations of the Interstate Commission and the Wisconsin law but with 20 cents added to the \$2 per hundred payment for administrative expenses, the employers to contribute \$1.50 and the employees 70 cents.

Massachusetts.—The Commission on the Stabilization of Employment in its report recommended a "system of state-compelled unemployment reserves" along the lines proposed by the Interstate Commission. In its report the Commission pointed out that "there are today only a small fraction of employees under any form of unemployment insurance or reserves" and that "at the same rate of growth, it would be decades before a much larger fraction would be covered" and that accordingly "unless the state makes a start, there will be no appreciable progress."

New York.—The Joint Legislative Committee on Unemployment recommended in February, 1932, "the establishment at the earliest possible date of a compulsory state-wide system of unemployment reserves" and stressed "the absolute necessity of a system of universal unemployment

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

benefit plans" and the need for compulsory legislation for this purpose. The committee in early December concluded public hearings on the draft of a bill.

Ohio.—The Commission on Unemployment Insurance recommended legislation creating a single state fund built up by the payment of compulsory "premiums" of 2 per cent of the payroll by employers and 1 per cent of wages by employees. Costs of administration are to be paid from the insurance fund to which the state contributes nothing.

The Select Committee on Unemployment Insurance of the United States Senate submitted a unanimous report in June, 1932, favorable to the enactment of unemployment reserves legislation by the states, with Federal encouragement through deductions under the income tax.

The Baltimore Municipal Commission on Employment Stabilization, by unanimous vote, has decided to secure the introduction of a compulsory unemployment insurance bill in the 1933 Maryland legislature.

The Connecticut and Oregon commissions, created by their respective

1931 legislatures, submitted reports later.

New Commissions.—Three additional state commissions were created in 1932: in Illinois, "to make a careful study of the problem of unemployment and more effective means of preventing its recurrence and relieving its social ravages"; in Louisiana, to study unemployment insurance; and in Pennsylvania, "to examine into the possibilities of making some self-respecting provision for workers when unavoidable unemployment occurs," including consideration of the report of the Interstate Commission on Unemployment Insurance.

The American Federation of Labor at its 1932 annual convention adopted with only five dissenting votes the report of its executive council endorsing compulsory unemployment reserves under state laws. The Federation presented no draft bill of its own but specified in its recommendations certain fundamental principles including the placing of the entire cost upon industry, with emphasis upon employment stabilization and administration by the state with labor and management participation.

DIVISION XVI

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

AMERICAN ASSN. FOR LABOR LEGISLATION, 131 E. 23rd St., New York City.

AMERICAN FEDERATION OF LABOR, A. F. of L. Building, Washington, D. C.
AMERICAN FEDERATION OF MUSICIANS, 1440 Broadway, New York City.

CONFERENCE FOR PROGRESSIVE LABOR ACTION, 104 Fifth Ave., New York City.

INDUSTRIAL WORKERS OF THE WORLD, 90 E. 10th St., New York City.

INTERNATIONAL ASSN. OF GARMENT MANUFACTURERS, 395 Broadway, New York City.

INTERNATIONAL ASSN. OF MACHINISTS, 799 Broadway, New York City.

LONGSHOREMEN'S ASSN., 500 W. 30th St., New York City.

INTERNATIONAL SEAMEN'S UNION OF AMERICA, 623 So. Wabash Ave., Chicago, Ill.

JUNIOR ORDER OF UNITED AMERICAN MECHANICS, 121 N. Broad St., Philadelphia, Pa.

LABOR DEFENCE COUNCIL, 108 E. 14th St., New York City.

LEAGUE FOR INDEPENDENT POLITICAL ACTION, 52 Vanderbilt Ave., New York City.

LEAGUE FOR INDUSTRIAL DEMOCRACY, 70 Fifth Ave., New York City.

MARINE ENGINEERS' ASSN., 119 Broad St., New York City.

XVI. LABOR AND LABOR LEGISLATION

MASTERS', MATES' AND PILOTS' ASSOCIATION, 119 Broad St., New York City.	NATIONAL INDUSTRIAL CONFERENCE BOARD, 247 Park Ave., New York City.
NATIONAL ASSN. OF LETTER CARRIERS, A. F. of L. Building, Washington, D. C.	NATIONAL INDUSTRIAL COUNCIL, 11 W. 42nd St., New York City.
NATIONAL CIVIC FEDERATION, 1 Madison Ave., New York City.	NEPTUNE ASSOCIATION OF MASTERS AND MATES OF OCEAN AND COASTWISE STEAM VESSELS, INC., 82 Broad St., New York City.
NATIONAL FEDERATION OF POST OFFICE CLERKS, A. F. of L. Building, Washington, D. C.	

DIVISION XVII

RELIGION AND RELIGIOUS ORGANIZATIONS

PROTESTANT CHURCH ACTIVITIES

BY HERMAN C. WEBER

EDITOR, *Year Book of American Churches*

GENERAL

The Depression.—The promise of the year 1931 of renewed power and development in the Churches of the United States seems to have been very much affected by the continued depression and by the extraordinary confusion and perplexity in the leadership of the nation in various great areas of thought. Religious leadership has not proved itself capable of grappling with the unparalleled confusion throughout the country any more than economic, political and philosophical leadership. Leadership in religion would naturally manifest itself in the meetings of religious bodies and would present through them articulated or inspirational programs for immediate and sustained recovery. This has not been the case. In spite of the very good attendance which most of the significant religious gatherings have had, no outstanding or adequate challenges have been heard. On the other hand, the efforts of the leadership in control of religious bodies have been devoted to the balancing of budgets, curtailment of expenditures, critical appraisal of organization, and attempts to meet the difficulties of a period of depression. In these respects the churches have undoubtedly done constructive work and have deflated in accordance with the general movement in this direction. Another side to the situation of the Churches is their relation to the political overturn and the enormous development of resentment

against the Eighteenth Amendment. The Churches, in their leadership, have always opposed the evils of the liquor traffic. In the recent attempts to stir public opinion against the retention in the Constitution of the stringent bar against this traffic, the pulpit and the pew have widely separated. It is possible that this disarticulation has profoundly affected the church life of the country and affected the productivity indexes of the larger bodies of Protestant Christians.

The Thinking of the Church.—The confusion of the economic situation has greatly stimulated the interest of younger men in the ministry of the Churches along economic lines. The question of the Church's stake in solving the problems accentuated by the depression has been acute, but no leadership has developed as yet to voice a general Christian conception large enough or definite enough to appeal to the mass of Protestant Christians. There have been some indications during the year that the radio may become the medium through which individualistic leadership in the religious appeal and for the stimulations moulding of public opinion in its own direction. The development of the use of the radio as a political instrument superior to the mass-meeting or rally suggests that its development in religious appeal and for the stimulating of public opinion is impending. It is generally believed that the output of religious books during the year

XVII. RELIGION AND RELIGIOUS ORGANIZATIONS

1932 has not been as significant as in some previous years.

Sectarianism.—Side by side with the intense nationalism which has characterized American politics and statesmanship, an intenser sectarianism has been noticeable among the Churches. The projects for union, so much in evidence a few years ago, are largely quiescent and have been partly shelved by cautious and concerned Church leaders. The two most promising unions recently under negotiation between the Reformed Church in the United States and the Evangelical Synod, and the proposed union between the United Presbyterian Church of North America and the Presbyterian Church, U. S. A., are proceeding with great care and unlimited patience. The fear of resistant minorities is controlling, and doggedness rather than enthusiasm marks the advance. On the other hand, cohesion for sectarian purposes is on the increase. The Lutheran bodies are showing remarkable progressiveness

within themselves in the federation of groups and in the general approach of distinctive Lutheran bodies to a general unit. Sectarianism has evidenced itself (in another direction) by the criticism of cooperative effort by some of the larger groups in the Federal Council of Churches of Christ in America. Practically all of the bodies meeting during the year had the proposal to sever connections with this cooperative effort on their docket. In one case, that of the Southern Presbyterian Church, the attack was successful and relations were severed. In others, action was postponed pending a proposed reorganization of the Federal Council in function and structure.

Books.—The following list of selections of the Religious Book Club is submitted for record purposes as significant of the choice of such leaders for the year as S. Parkes Cadman, Harry Emerson Fosdick, Francis J. McConnell, Charles Clayton Morrison and Mary E. Woolley.

Month	Title	Author
January	<i>Grace in the New Testament</i>	James Moffatt
February	<i>Jonathan Edwards</i>	Arthur Cushman McGiffert, Jr.
March	<i>A History of Christian Thought</i>	Arthur Cushman McGiffert, Jr.
April	<i>Christianity and the New World</i>	F. R. Barry
May	<i>A Preface to Christian Faith in a New Age</i>	Rufus M. Jones
June	<i>What We Live By</i>	Abbe Ernest Dimnet
July	<i>Psychology for Religious Workers</i>	Lindsay Dewar and Cyril E. Hudson
August	<i>Prayer</i>	Friedrich Heiler
September	<i>The Rebel Prophet</i>	T. Crouther Gordon
October	<i>The Literature of the New Testament</i>	Ernest Findlay Scott
November	<i>Re-Thinking Missions</i>	William Ernest Hocking
December	<i>Moral Man and Immoral Society</i>	Reinhold Niebuhr

COVERING STATISTICS

Sources.—In 1931 Dr. H. K. Carroll, for many years the collector of statistics of the Churches and an authority in his field, died. His annual compilation was printed by the *Christian Herald* and was a significant contribution to the understanding of the progress or decline of organized religion in the United States. This compilation was confined to a report of Church membership and was subject to the many statistical defects which inhere in sectarian reporting. After Dr. Carroll's death, Dr. G. L. Kieffer undertook to complete the 1931 compilation and to initiate the 1932 effort. The statisticians of various

bodies were invited to a meeting in New York which organized the Religious Statisticians Association with Dr. Kieffer as its president. A discussion of the inequalities of denominational reporting led to approval of a proposition of Dr. Kieffer's that for comparative purposes the 1926 census percentages of membership under 13 years be applied to the tabulations submitted to the *Christian Herald*. By this device it was felt that comparable figures might be presented from year to year, which would give a better statistical report of advance or decline in membership than the very variable methods of reporting in use in the various denomina-

PROTESTANT CHURCH ACTIVITIES

tions. It was found, for example, that in the Roman Catholic Church 28.2 per cent of membership reported was under 13 years of age, in the United Lutheran Church, 26 per cent, in the Methodist Episcopal Church 8.8 per cent, in the Presbyterian Church, U. S. A., 4.5 per cent, and in the Unitarian Church 1 per cent. The 1932 compilation, therefore, presents the first attempt at a presentation based on a fixed standard of membership. It comprises memberships of adults, that is to say, persons 13 years and over. Other variable factors still remain for each body has its own membership definition, but the most variable factor of all has been eliminated. Dr. Kieffer has applied the percentages of child membership to the compilation of 1931 in order to reckon increases for 1932. This report is the most reliable, it is believed, yet presented, with the exception of an error of 101,914 persons belonging to 34 bodies included in this table but not in the tables of the year before. The table which follows contains the reports of

all bodies having 100,000 members or more. Of these there are 35. The *Christian Herald* table lists 179 individual bodies, but inasmuch as the bodies listed below contain 95.6 per cent of the total reported membership of all religious bodies, the list is statistically decisive, and these pages need not be cluttered up with the details of reporting of many small separatist religious groups. Owing to the decease of the Stated Clerk of the United Presbyterian Church, the statistics of that body were not included in the *Christian Herald* table. They appear, however, in the table below and affect the totals as presented by Dr. Kieffer.

ADULT MEMBERSHIP OF THE LARGER RELIGIOUS BODIES IN THE U. S.

The religious bodies reporting 100,000 members or more are listed in the order of their percentages of increase or decrease in 1931 over the preceding year. The church years end at various dates in 1931, from March to December.

Numbered by Size	Name	Members 13 Years old and over	Increase	Per Cent
33	Assemblies of God.....	109,045	12,491	12.93
22	Colored Methodist Episcopal.....	325,484	21,606	7.11
30	Conservative Brethren.....	134,102	8,232	6.54
31	Seventh Day Adventists.....	128,313	5,144	4.17
4	Southern Baptists.....	3,702,315	86,904	2.40
16	Latter Day Saints.....	468,386	9,978	2.17
14	Lutheran Synodical Conference.....	868,558	15,832	1.85
11	United Lutheran Church.....	962,461	16,505	1.74
9	Northern Baptists.....	1,385,284	22,910	1.68
27	Methodist Protestant.....	179,433	2,923	1.65
6	Methodist Episcopal, South.....	2,346,000	38,000	1.64
12	American Lutheran.....	936,626	13,082	1.41
19	Presbyterian, U. S. (Southern).....	427,627	4,106	0.96
20	United Brethren.....	360,192	2,417	0.67
10	Protestant Episcopal.....	1,261,158	6,931	0.55
7	Presbyterian, U. S. A.....	1,859,495	9,787	0.52
13	Congregational.....	910,828	2,911	0.32
28	United Presbyterian (Added to Herald table).....	168,540	515	0.30
1	Roman Catholic.....	14,441,011	18,045	0.12
25	Evangelical Church.....	203,764	83	0.04
Totals.....		31,178,622	298,402	0.96
			Decrease	
2	Methodist Episcopal.....	4,135,775	3,727	0.09
29	Reformed in America.....	156,486	290	0.18
8	Disciples.....	1,432,265	4,477	0.31
21	Reformed in U. S.....	346,712	2,794	0.79
24	Evangelical Synod.....	255,141	2,583	1.00
15	African Methodist Episcopal.....	581,750	5,945	1.01
Totals.....		6,908,129	19,816	0.28

XVII. RELIGION AND RELIGIOUS ORGANIZATIONS

Numbered by Size	Name	Members (last report)	Increase	Per Cent
32	American Baptist Association.....	116,562	.....	.....
5	National Baptists (Col.).....	3,510,000	.....	.....
35	Primitive Baptists.....	102,770	.....	.....
23	Greek Orthodox (Hellenic).....	289,000	.....	.....
34	Russian Orthodox.....	107,550	.....	.....
26	Church of Christ Scientist.....	202,098	.....	.....
18	Churches of Christ.....	433,714	.....	.....
3	Jewish Congregations.....	4,081,242	.....	.....
17	African Methodist Episcopal Zion.....	435,500	.....	.....
Total.....		9,278,436	.....	.....
36-179	All others.....	2,208,713	43,121	2.00

Grand Total (Members 13 years old and over).. 49,573,900 Total net increase.. 321,707
 Total Membership, All Ages, Reported in 1932 List.... 59,268,764

NOTE: Of the 122,000,000 population of the United States, 91,600,000 approximately are 13 years old or over. The percentage in registered good standing as church members (see above table) is 54.

GIVING IN THE CHURCHES

Religious Body	Member- ship	Congre- gational expenses	Denomi- national benevo- lences	Non and Inter- denomi- national benevo- lences	All purposes	Year ending
Baptist: Northern Convention....	1,445,615	\$24,313,734	\$4,046,704	.....	\$28,360,438	Apr. 30, 1932
Baptist: Southern Convention....	3,944,566	26,798,753	5,819,374	.....	32,618,125	Apr. 30, 1932
Brethren: Church of the Brethren.	143,425	855,543	450,934	\$50,000	1,356,477	Feb. 28, 1932
Brethren: United Brethren in Christ.....	396,687	4,383,171	1,080,210	62,149	5,525,530	Oct. 1, 1931
Congregational and Christian Churches.....	1,048,205	19,195,468	2,632,375	825,058	22,652,901	Dec. 31, 1931
Disciples.....	1,549,754	13,173,681	3,240,544	50,000	16,464,226	June 30, 1931
Episcopalian: Pro- testant Episcopal	1,860,903	32,520,350	4,979,650	.....	37,500,000	Dec. 31, 1931
Evangelical Church.....	227,472	4,245,640	708,246	176,285	5,130,171	Sept. 30, 1932
Evangelical Synod of N. A.....	259,896	4,381,634	645,668	72,168	5,099,461	Jan. 31, 1932
Lutheran: Ameri- can Lutheran Conference....	943,063	12,203,275	2,911,825	.....	15,115,098	Dec. 31, 1931
Lutheran Synodi- cal Conference..	909,307	12,207,358	3,520,910	.....	15,728,268	Dec. 31, 1931
Lutheran: United Lutheran Church	1,001,520	14,702,601	3,334,045	.....	18,036,646	Dec. 31, 1931
Lutheran: Other Synods.....	87,523	670,862	166,286	.....	837,148	Dec. 31, 1931
Methodist: Metho- dist Episcopal..	3,915,755	67,863,940	12,849,944	2,044,615	82,758,499	May 31, 1932
Methodist: Metho- dist Episcopal, South.....	2,603,095	24,028,455	7,064,369	523,192	31,616,016	Dec. 31, 1931
Moravian: North- ern Province...	18,613	458,474	101,072	9,996	569,544	Dec. 31, 1930
Presbyterian: Pres- byterian Church U. S. A.....	1,957,999	39,950,927	10,475,954	.....	50,426,881	Mar. 31, 1932
Presbyterian Church U.S. (S)	468,532	7,816,420	3,247,164	.....	11,063,584	Mar. 31, 1932
Presbyterian: United.....	178,177	3,408,516	1,645,863	105,571	5,159,950	Mar. 31, 1932
Reformed in A....	160,198	3,613,083	795,428	160,909	4,569,420	Apr. 30, 1932
Reformed, U. S...	346,945	4,812,035	1,141,525	88,211	6,041,769	Dec. 31, 1931
Total.....	23,467,250	\$321,603,920	\$70,858,088	\$4,168,154	\$396,630,152	

PROTESTANT CHURCH ACTIVITIES

CHURCH FINANCES

A great deal of interest has been manifested in the manner in which the local and the missionary work of the churches of the United States might be affected by the general paralysis of business and reduction of income. The United Stewardship Council, which includes representatives of 21 of the larger denominational bodies, reported the latest figures obtainable from its constituent bodies at its annual meeting in Indianapolis, Dec. 3. The table (p. 588) is the report as rendered by Harry S. Myers, D.D., Secretary, to whose courtesy we owe the release before publication of this compilation. The totals represent the contributions during a period largely in the year 1931, some of the church years ending in December and others extending three or more months into 1932.

THE DECLINE IN GIVING

In order to permit comparisons between the Bodies whose figures are available, the table below is provided. The average reduction in giving by the average church member was \$2.43 or a drop of 13.2 per cent. The gross retraction for this group, in which 17 religious bodies appear, was a little more than \$57,000,000. Apparently the Southern Baptists were least affected in 1931, while the Evangelicals of the central West, the Episcopalians of the cities, and the Southern Methodists of the rural regions were especially affected. The information available in December indicated that the retraction for 1932 would be still larger on the average and that extraordinary efforts at budget-balancing were required and were being effected.

RETRACTION IN TOTAL GIVING AS REPORTED IN 1932

	Retraction total giving	Per Cent of retraction
Baptist: Northern Convention.....	\$4,929,232	14.8
Southern Convention.....	1,870,896	5.4
Brethren*: Church of the Brethren.....	.....	....
Brethren*: United Brethren in Christ.....	.....	....
Congregational and Christian Churches.....	2,768,169	10.9
Disciples*.....	.....	....
Episcopalian: Protestant Episcopal.....	8,444,896	18.3
Evangelical Church.....	896,861	14.8
Evangelical Synod.....	1,208,861	19.1
Lutheran: American Lutheran Conference.....	2,512,023	14.2
Lutheran: Synod. Conference.....	1,683,425	9.6
Lutheran: United Lutheran Church.....	2,412,818	11.7
Lutheran: Other Synods.....	72,773	7.9
Methodist Episcopal.....	10,922,434	11.6
Methodist Episcopal, South.....	6,888,101	17.8
Moravian*.....	.....	....
Presbyterian, U. S. A.....	8,847,135	14.9
Presbyterian, U. S. (S).....	1,909,523	14.7
Presbyterian, United.....	732,534	12.4
Reformed in America.....	622,343	11.9
Reformed in U. S.....	353,709	5.5
Total for this group.....	\$57,075,735	13.2

* Figures not available at time of going to press.

THE PRESBYTERIANS

The Presbyterian Church, U.S.A., met in Denver, Col., May 26 to June 1. Many rumblings of discontent preceded its convening and it was expected that the depression affecting the receipts of its Boards, sharp criticism of the General Council of the Church and a disposition to push separation from the cooperative work of the Federal Council of Churches of

Christ in America would enliven debate and affect the enthusiasm of the Assembly. These fears were, however, rendered groundless by a series of pre-Assembly conferences on evangelism which drew great audiences and developed a spiritual tone in the Assembly on its convening which made careful judgment and hope the characteristic feature of the session. Some suspicions of manipulation for the

Moderatorship were completely dissipated by a spirited election in which five leaders were presented, the largest number in many years. The Reverend C. W. Kerr, D.D., of Tulsa, Okla., pastor of one of the largest churches in the denomination, was elected Moderator on the third ballot. He immediately appointed his rivals to the most important committees and assured the Assembly of adequate and representative direction. The criticism of the General Council was met by the fullest opportunity for inquiry and resulted in a motion of commendation for its work which was passed by a practically unanimous vote. An attempt by a small minority to force separation from the Federal Council was defeated by an overwhelming vote. Notice was taken of the criticism of the Council, however, by an action which arranged to pay the expenses of delegates to the Council, insistence on their participation in its work, and requiring accountability for actions taken to the Assembly itself.

Social and Economic Relations.—

The Rev. Dr. John McDowell, secretary of the National Presbyterian Committee on Social and Industrial Relations, initiated in December in New York State a series of meetings to be held for the next two years in one day conferences having sessions for business men and ministers and a joint session for ministers and church officers in the presbyteries throughout the United States. The object is to carry into action among Presbyterian churches suggestions that have resulted from surveys made by officials of the denomination and pronouncements of the General Assembly. The total number of statements reflecting the state of mind of the Presbyterian Church in the U. S. A. upon social and economic conditions since 1910 has been 45 proposals and 22 resolutions. In that year the denominational position was stated on social and industrial problems. In 1920 it was again stated on industrial problems and this year in regard to the Church in the economic crisis. The meetings begun in December were to promote the teaching of lay leaders in business, industry and the professions

to practice the Christian principles of cooperation, justice, democracy and brotherhood. It was emphasized that labor should have a voice in the management of industry, that suspicion and selfishness should be eliminated from human affairs, that there should be greater equity in the distribution of the earnings of industry and that jobs should be provided for everyone. Three fundamental questions were being used by Dr. McDowell as a basis of the discussions into which were introduced also 25 auxiliary questions. The leading question was as to whether or not the Christian Church had any definite responsibility in social and industrial relations. If so, the motive was to determine what that responsibility is and how it can most effectively be met. The Christian Church was defined as the body of organized Christianity and the agent of organized religion but in the series of Presbyterian conferences the Presbyterian denomination as one of the component parts of the Christian Church was kept uppermost.

The Presbyterian Church, U. S.—

This Body met at Montreat, N. C., May 26-31. Two matters of critical importance were acted upon. One was the matter of the proposed union within the Presbyterian family. A plan for federal union was presented and adopted with the unexpressed feeling that it would not be acceptable to other Bodies, but would clearly present the attitude of Southern Presbyterians. The other matter was the proposal to sever all relations with the Federal Council. The effort to accomplish this was successful by a substantial majority and all relations were severed. The effect of the depression was seen in the modifying of denominational machinery and the curtailing of some form of the work.

PROTESTANT EPISCOPAL

Budget.—The House of Bishops of the Protestant Episcopal Church was convened for three days in an emergency meeting at Garden City, L. I., in April. The conference was held because of a deficit of \$979,000 discovered in the national Episcopal budget for this year. The delibera-

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tions were concluded with the authorizing of a message to be transmitted to all parishes summoning all communicants to the financial support of the denomination. A budget of \$4,225,000 had been adopted at the triennial general convention in Denver in 1931 attended by the bishops and the House of Clerical and Lay Deputies. But it was foreseen early this year that the budget could not be met. The situation was disclosed in February by the National Council, which is the executive and administrative body in charge of balancing the budgets yearly. The Council's headquarters are at the Church Mission House, 281 Fourth Avenue, New York City.

Salary Cuts.—The National Council had as the first step announced salary cuts early in the year for all of the staff and for 3,500 missionaries in the foreign and home mission fields. Cuts were also made in the disbursements for administrative work. This effected a reduction of \$600,000 which the Council held was the limit to which it could go without episcopal authority. An emergency fund of \$400,000 was sought to avert a larger deficit. A cut of ten per cent in salaries of the headquarters staff of the Council which took effect early in 1932 was continued to be in effect in 1933 and an additional cut of similar size was announced. The preliminary budget for 1933 is \$3,050,000. The final budget for 1932 was \$3,648,000. Cuts from the existing allotments for work of the denomination included \$215,270 taken from foreign missions and \$98,871 from domestic missions.

Mission Work.—The Most Rev. James De Wolf Perry, Presiding Bishop, was authorized to visit the Orient at his earliest opportunity to hold consultations with missionary bishops there upon all phases of their work in the Far East. A similar evaluation of the work of domestic missions by his assistant, the Right Rev. Hugh Latimer Burleson, is to be completed by Feb. 1, 1933 so that a complete survey of domestic missions may be available when the council balances its budget at the February meeting.

THE METHODISTS

The year was significant for the Methodist Church because of the quadrennial conference held at Atlantic City May 2-25. This was the thirty-first meeting of this Body and was attended by 815 delegates from domestic and foreign conferences of the Church. The conference organized itself into many standing committees which met steadily for two weeks, morning and afternoon, to digest over 500 memorials containing business for the conference. Conference sessions were very brief the first week, extended to three hours during the second week, and included night sessions the final week. A great part of the time of the conference was spent in discussing the relationships of bishops, their salaries and standing and the election of two bishops to fill vacancies. After 17 ballots Dr. McGee of Seattle, Wash., was elected to one vacancy and after 19 ballots, Dr. Cushman of Rochester to the other. The World Service Commission was abolished so far as a promotional staff and definite activities were concerned. The work of promoting the benevolences of the Church was returned to the agencies concerned. Attempts to liberalize the constitution of the Church were not successful in obtaining the full number of votes required though the majority of these were in favor of them.

THE LUTHERANS

Development of Solidarity.—The year saw a rapid process of development in the movement to promote solidarity among the many ramifications of Lutheranism in the United States. Approaches have been made from many angles to the ultra-conservative Bodies and some of them have met with very fair success. The laymen of the Church have exercised their influence in many different directions. The consciousness of solidarity has been greatly stimulated and is hopeful from the progressive Lutheran point of view. There are now three outstanding groups bound together by developing ties and promising still greater unity in the immediate future. The progressive group is the United Lutheran Church which includes the

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oldest bodies of Lutherans dating back to Colonial days. The second group is the ultra-conservative Synodical Conference in which the Missouri Synod is the leading Body. Between these two groups has entered the recently formed American Lutheran Conference which held its first biennial convention in Wisconsin late in the year. These three groups are nearly equal in size and contain most of the Lutheran groupings except the racial synods like the Icelandic, Finnish, etc.

United Lutheran Church.—The biennial convention of this Body was held in Philadelphia beginning Oct. 12. Dr. F. H. Knubel was reelected president and handled the business of the convention admirably. Two items of particularly important business were discussed by the convention. One was a proposal to merge seminaries and greatly reduce their number. It was felt that this proposal would contribute to the unification of the Church and the breaking down of regional or racial separations. It was bitterly opposed but finally carried with the support of the laymen of the convention. The other critical item was an inquisition into the affairs of the Pension Board of the Church. This was successfully accomplished and without ill results. Special attention was given to relations with other Lutheran Bodies and fraternal greetings were carefully exchanged. Very large public meetings were held.

The American Lutheran Conference.—The first biennial of this Conference which was set up in 1930 was held Nov. 16-18 in Milwaukee. It was largely confined to academic discussions rather than to business. Progress was, however, made toward a closer union of the constituent Bodies. A remarkable address by Dr. L. W. Boe was made during the sessions, which was widely distributed among Lutherans of all persuasions and was expected to promote closer approachment and greater solidarity.

THE BAPTISTS

The Northern Baptist Convention.
—This Body met at San Francisco

July 12. The occasion was notable because of the celebration of the one hundredth anniversary of the American Baptist Home Mission Society. This anniversary was prepared for by a covered wagon which made the overland journey from Brockton, Mass., to Oregon, making numerous stops in Baptist centers for the commemoration of the development of Home Mission work across the continent. The convention itself had a proposal before it to sever relations with the Federal Council. The matter was fully debated and finally referred to a committee for investigation and report at the next convention pending the proposed reorganization at the quadrennial meeting of the Council in December. At this meeting the large Baptist delegation presented the views of the convention and in the end unanimously supported the reorganization. In addition Baptist attitudes were taken into consideration in the election of a very distinguished Baptist educator, Reverend A. W. Beaven, D.D., president of the Colgate-Rochester Divinity School, as president of the Council.

THE REFORMED CHURCHES

Both the Reformed Churches, the Reformed Church in America and the Reformed Church in the United States, of Dutch and German origins respectively, had their general synods during the year. The Reformed Church in America observed one of its anniversaries in a celebration at Kingston, N. Y., in one of its historical churches. The occasion was the one hundredth anniversary of its Board of Foreign Missions and a distinguished list of speakers was heard. The Reformed Church in the United States had its triennial general synod at Akron, Ohio. Under the pressure of decreasing income the synod made serious retrenchments in its budget of askings for benevolences and a number of changes in its administrative work. It enthusiastically advanced its proposals of union with the Evangelical Synod of North America. This Synod was formed in 1840 to minister to German immigrants who were

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Lutheran and Reformed, and called their union Evangelical. The two Bodies are about the same size and, if and when united, will be a strong scholarly and progressive group.

EVANGELICAL

Church and Synod.—Another Body uses the designation Evangelical. It is the Evangelical Church as distinguished from the Synod and goes back in lineage to the great awakening and other revival movements in the American churches and their effect on the Germans of Pennsylvania. Another Body with the same background

is the United Brethren Church. Both these bodies pressed efforts for evangelism during the year. The Evangelical Church held its first quadrennial missionary convention at Elkhart, Ind., Sept. 28 to Oct. 2.

The Disciples of Christ.—This Body held its annual international convention in Indianapolis where its headquarters are located Oct. 11-16. Eleven thousand persons were reported in attendance at the various mass meetings and a large amount of time was contributed by the local radio station to the broadcasting of the session.

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BY PRESTON K. SHELDON

EDITOR AND WRITER

GROUP RELATIONS

Christians and Jews.—The leavening forces of Christianity which have been at work for nearly 2,000 years were in 1932 responsible for the most significant manifestations of an approach to universal understanding and mutual agreement among spiritual leaders and so among Christian denominations and religions of all faiths, that has occurred since man's consciousness of his Creator led to the institution of organized visible agencies to carry on public worship. These manifestations were expressed at the first national conference of Catholics, Jews and Protestants at the Hotel Willard, Washington, D. C., March 7-9, where a seminar of ten sessions was held as a tribute to George Washington for his open-minded attitude toward all faiths. The seminar was timed to be held while the nation's mind was centered on the opening of the bicentennial celebration of Washington's birth. It had as its theme "Religious Liberty and Mutual Understanding." No attempt was made to secure oneness of religious beliefs or practices but friendship and understanding in spite of differences and, in some aspects, on account of them. The seminar was

made possible through the efforts of a committee of the Federal Council of the Churches of Christ in America which took the lead in assembling a group of spiritual leaders of the three faiths. Two years ago 40 representatives of these faiths met in New York City and at that time Michael Williams, editor of *The Commonwealth* (Catholic) suggested the plan. Seminars similar in character have been held for the past few years in cities and colleges throughout the country.

Leaders.—In the source book at Washington were printed extracts from Washington's letters to Methodists, Baptists, Roman Catholics, Quakers, Jews, Universalists, Episcopalians, Presbyterians, members of the New Church (Swedenborgian) and others. There were three chairmen. They were Roger W. Straus of the Union of American Hebrew Congregations; Newton D. Baker, an Episcopalian, for the Protestants and Professor Carlton J. Hayes of Columbia University, for the Catholics. Back of the call to the conference were a group of men and women of all faiths. The list included Charles Evans Hughes, Ogden L. Mills, Benjamin N. Cardozo, Alfred E. Smith, Dr. John H. Finley, Owen D. Young,

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Mrs. John D. Rockefeller, Jr., Mrs. Franklin D. Roosevelt, Ida M. Tarbell, Jane Addams and others. Those who took part in the round table discussions included social scientists, psychologists, priests, rabbis, ministers, educators, lawyers and writers. All through the sessions mere tolerance was exceeded by a spirit that was above a condescending attitude. The seminar had as its motto "Live Together" rather than just "Live and Let Live."

Enrollments.—There were 475 persons registered of whom half were Protestants and half about equally divided between Jews and Roman Catholics. The Conference has a permanent organization with offices at 289 Fourth Avenue, New York City. Several regional conferences were organized throughout the country during the year under the leadership of Everett R. Clinchy, director.

Purposes.—Studies of relationships among the religious groups in representative American communities were evolved in the autumn to be completed in 1934. Emphasis will be put upon political and economical aspects of religious prejudice which were admitted at the seminar in Washington to be the underlying causes of human misunderstanding. The results will form the basis of discussions at the second national seminar to be held in 1935. Seminars and conferences for cities and colleges were planned for the year 1933 to be held in Philadelphia, Rochester, Syracuse, Baltimore and other cities. Conferences started in Boston, Providence, Kansas City, Denver, Oakland, Portland, Ore., and elsewhere are to be continued.

Churches Abroad.—A world conference on Christian life and work is to be held in 1937. This was announced at the sixth quadrennial convention of the Federal Council of Churches in December at Indianapolis by the Rev. Dr. S. Parkes Cadman, chairman of the Council's commission on relations with churches abroad. The conference will be under the auspices of the Universal Christian Council for Life and Work. The proposed gathering is expected to bring together

about 500 leading churchmen of the Protestant and Greek Orthodox communions.

Laymen's Foreign Missions Inquiry.—The development of a new point of view toward other faiths by Protestant Christians became public knowledge in November through a voluminous report by the Commission of Appraisal of the Laymen's Foreign Missions Inquiry which had been completed in two stages over a period of two and one-half years. Studies were made in Japan, China and India, including Burma. The commission was composed of 15 members headed by Professor William E. Hocking of Harvard University. Its conclusions were arrived at after using as a basis a set of facts procured in 1931 by a corps of research workers sent out late in 1930 by the Institute of Social and Religious Research under the supervision of Galen M. Fisher. More than 160 recommendations were made. Seven Protestant denominations were unofficially represented on a board of 35 directors of the inquiry. These denominations were Baptist (Northern), Congregational, Methodist Episcopal, Presbyterian Church in the U. S. A., Protestant Episcopal, Reformed Church in America and the United Presbyterian. The report of the commission was discussed at the Hotel Roosevelt in New York City by the officials of the boards of foreign missions of the seven denominations. It was largely received as a friendly attempt at constructive criticism.

Clerical Reactions.—Statements were issued before the end of the month by all but three of the foreign mission boards seeking to dispel an impression of hostility that was believed to have been gained from press reports. The findings of the commission were published in book form the same month by Harpers under the title *Rethinking Missions*. The Foreign Missions Conference of North America held its 1933 annual meeting late in December, 1932, at Briarcliff Manor, N. Y., and took the report under consideration. The date of the meeting was advanced from January, 1933, because of developments

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in the general program of the conference requiring early action, of which the publication of the laymen's recommendations was regarded as an important factor.

Cooperation Anticipated.—It was brought out by the laymen that there was nothing in the recommendations that had not already been anticipated by denominational mission leaders and that many proposals advanced already existed in embryonic form and needed for their promotion only to be brought under a cooperative endeavor. The occasion at the Hotel Roosevelt was the first on which a representative interdenominational group had been given a joint opportunity to secure a complete picture of conditions understood separately by their mission boards.

Commission's Conclusion.—The report sought to beat down misgivings felt by earnest and sincere Christians whose zeal for Christianity might lead them to think solely in terms of competition. The findings of the commission led to the conclusion that a basis should be found for a common agreement among the great religions so that what Christianity means might find its way into the other great religions and become within them a revolutionizing influence. While the commission believed foreign missions should go on, the recommendation was made that they undergo radical changes, and before such changes were made no attempt be undertaken to enlarge them. Missions were seen as a prelude to a permanent function of promoting world understanding and unity on a spiritual level. A more critical selection of missionaries was among the recommendations.

Missions Studied.—Decided emphasis was immediately placed, however, in public statements of foreign mission board officials upon the organizing of Christian converts into churches with no relaxation of Christian missionary ideals. They reiterated their faith in foreign mission enterprises developed at great financial expense through the self-sacrificing labors of their missionaries, and of those at home who for many decades had given money to support them. Information concerning the objectives sought

reached a high point of interest during the year through the study of missions in China by the use of texts furnished by the Missionary Education Movement of the United States and Canada. These studies were carried on by practically all Protestant denominations in the United States. In 1933 the subject will be Japan.

Presbyterians Dissent.—The General Council of the Presbyterian Church dissented from the conclusions of the commission as to the aim and message of the Christian missionary enterprise in an official pronouncement authorized at an executive meeting in Chicago before the meeting of the delegates to the conference of the seven denominations at the Hotel Roosevelt but not made public until after the conference. In the pronouncement it was stated that a denial of evangelical Christianity had been proposed by the commission.

A Challenge.—As the year closed all the missionary boards and officials of the executive bodies of the churches represented on the commission of appraisal and the inquiry were devoting their time to a study and an analysis of the report. Preliminary information was to the effect that months would be required to meet what was felt to be a challenge either for defense of existing methods or for steps looking toward their improvement.

Episcopalians Defer Action.—The National Council of the Protestant Episcopal Church, meeting in December, issued a statement in which it was indicated that action would not be taken upon the laymen's inquiry report until Episcopal foreign missionaries had been given time to discuss it with their administrative officers. The preliminary judgment of the council was that the laymen were right in emphasizing church unity and went so far as to express the conviction that the goal is organic unity rather than mere cooperation among denominations. The council voted to give consideration immediately to all the recommendations. The Most Rev. James DeWolf Perry, Presiding Bishop, was directed to visit the Orient. His trip was planned for the Spring of 1933.

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Supplementing Missions.—The Laymen's Foreign Mission Inquiry saw a need for a common search for truth by believers of all faiths meeting together in established centres in foreign countries that would be distinct from the usual type of teaching missions in foreign fields yet not conflicting with their purposes. No compromise was offered for Christians to make. The end sought was to find a means of clarifying the points of difference between faiths.

Rise of Secular Distrust.—The most pointed conclusion emphasized in a summary of the report is that ministry to the secular needs of men is an evangelism by means of which the Christian spirit can be transmitted contagiously. The most poignant reason discernible for the recommendation for greater interdenominational unity was the acknowledgement of the rising power of a secular distrust of all religions and a world culture opposed to them.

Religious Barriers Disappearing.—The Threefold Movement, endorsed by 500 religious leaders representing 22 different religions, among them 11 Christian and Jewish denominations, made itself felt this year in a larger way than heretofore in 15 centres where intergroup meetings had been organized by religious leaders and the use of prayers peculiar to their cults began to come into practice. This was the result of a tendency in both foreign countries and in this country for Christians individually to present an open mind to leaders of other religions, who reciprocated. Similar groups had long been holding conferences in foreign lands which had their origins in an almost spontaneous desire for greater world brotherhood that was without doubt prompted by the breaking up of religious barriers during the world war.

Unity.—The Threefold Movement seeks unity rather than uniformity; appreciation rather than mere toleration. It came from a grouping of "The Union of East and West" movement which started in England in 1910 and in America in 1920 through the presentation of classic Eastern plays and other activities to

promote cultural unity; "The League of Neighbors" which began in 1918 in Chester, Pa., and in 1920 in Elizabeth, N. J., and placed an emphasis on racial, international and human unity and the "Fellowship of Faiths" created in 1924 by the coming together of the first two groups for religious and spiritual unity. Among the centres are those at New York City, Philadelphia, Baltimore, Washington and London. Committees in the various centres are headed by the foremost spiritual leaders.

FEDERAL COUNCIL OF CHURCHES

Issues Discussed at Quadrennial Meeting.—The sessions of the quadrennial meeting of the Federal Council of Churches were held in the Hotel Severin at Indianapolis, Dec. 6-9. Among the issues discussed were evangelism, Christian family life, worship, improvement of race relations, economic relations, war, relief for the under-privileged and the unemployed, birth control, divorce and the furtherance of Christian cooperation and unity. A recommendation for repeal of legislation prohibiting the dissemination of birth control information was defeated. The whole issue will be studied by the executive committee and reported at the next meeting in 1934.

Constituency.—Suggested changes in the organization of the Council were adopted to bring it into closer relations with the constituent denominations of which there are twenty-five Protestant communions. The denominations represented comprise 135,000 churches with a total membership of more than 22,000,000 communicants. The meeting marked the twenty-fourth anniversary of the organization of the council.

Officers.—The Rev. Dr. Albert W. Beaven, president of the Colgate-Rochester Divinity School, a Baptist institution, was elected president. Dr. Lewis Seymour Mudge was chosen vice-president. The general secretary is the Rev. Dr. Samuel McCrea Cavert.

International Justice.—The Council adopted the report of its Commission on International Justice and Goodwill, headed by Alanson B.

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Houghton, with some changes. A stand was taken against requiring applicants for citizenship papers to express a willingness to bear arms.

Sino-Japanese Controversy.—Long and intensive study was given by the commission to the main issues in the Sino-Japanese crisis. The administrative committee of the Council endorsed the policy of the government announced Jan. 7 by Secretary of State Stimson which contained the declaration that the United States would not recognize "any situation, treaty or agreement" with respect to Manchuria that had been brought about by non-pacific methods. The commission distributed 35,000 copies of the 1932 Armistice pamphlet "Next Steps in Getting Rid of War." Under the program of peace education of the commission, the heads of 24 Protestant denominations joined in issuing a call to the observance of Armistice Sunday.

Lenten Services.—The Fellowship of Prayer, a booklet prepared for daily devotional use during Lent had an increase of 50,000 in circulation over 1931, the total number of copies for 1932 being 750,000. Dr. Jesse M. Bader on Jan. 1, 1932, became field secretary of the commission on evangelism under whose charge the Lenten booklets were sent out.

Marital Relations.—The Rev. Dr. Leland Foster Wood, Professor of Christian Ethics in the Colgate-Rochester Divinity School, became field secretary of the committee on marriage and the home and represented it at the International Conference on Social Work, at Frankfurt, Germany, in July. He began his duties Sept. 1 to promote the cultivation of Christian family life. A pronouncement on the intermarriage of members of different Christian communions, the third on marital relations, was published March 31, and a second edition of a statement on ideals of love and marriage, issued first in 1929, was published in the Spring of 1932 and as part of it a special gift edition for presentation to newly married couples.

Function and Structure.—A meeting of the council's committee on function and structure was held in Atlantic City, N. J., April 14-15 to formulate recommendations for adoption in December. The decision was reached at Indianapolis to meet every two years instead of four. Membership in the council was reduced from 460 to 287. The former administrative and executive committees were combined into one body to be known as the executive committee. In reducing the size of the council each denomination was allotted three members with an additional member for each 100,000 communicants. On the executive committee each denomination is now entitled to two members with an additional member for every 500,000 of its communicants after the first 500,000. It is to meet monthly except when otherwise called. All members of the two bodies are to be named directly by their respective denominations.

Departments.—The former commissions and committees were reorganized into eight major departments, *i.e.*, field, evangelism, research and education, social service, race relations, international justice and goodwill, relations with churches abroad and radio. A committee on worship organized this year is expected to be developed into a department later. All departments and committees are to be under direction of the executive committee, and the members will be appointed by it.

Delegated Administrative Functions.—The committee on function and structure recommended an amendment to the constitution which would have empowered the council "to administer for any of the constituent bodies such activities as they may commit to it and as the council may accept." Sharp debate followed. An informal vote showed a majority in its favor but it was felt unwise to adopt a change of such far-reaching possibilities without substantial unanimity. Final decision was deferred to 1934.

The Church and Social Service.—The commission on the Church and Social Service met Sept. 30 and

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adopted for presentation at Indianapolis a revision of social ideals in an attempt to achieve greater harmony with the prophetic and apostolic teachings of the Bible. The statement presented was intended to aid and stimulate rather than replace private judgment and group thinking. It was based on a group of objects the church should stand for which experience had shown to be shared by religious groups some of which are not represented in the council. The fields covered were economic and industrial relations, the rural problem, marriage and the home, race and international relations and prohibition. The new statement was received and approved with some changes. It was submitted by the Rev. Dr. Frank Mason North who presented the original statement at the first meeting of the Council in Philadelphia in 1908.

Public Morals.—The council opposed the submission of an amendment to repeal the Eighteenth Amendment to the Constitution of the United States. It also affirmed in the section on economic relations that gambling as a mania had been the climax to a debauch of stock speculating. To gambling was ascribed broken homes, suicides and the breeding of criminals.

Public Worship.—The Rev. Dr. Wilbur P. Thirkield, a retired bishop of the Methodist Episcopal Church, was appointed in March as chairman of the committee on worship which met in April and appointed three subcommittees. The purpose of the main committee is to act as a central clearing house for consultation, interchange of experience, plans and methods for mutual reinforcement and stimulus and joint study as to what is needed in Protestant churches to keep up their spiritual vitality. In connection with its work there was developed an interdenominational library on worship and the devotional life by the committee on literature of which the Rev. Dr. Oliver B. Huckel is chairman. The other committees were one on the training of candidates for the ministry in theological seminaries, of which the chairman is Professor William Adams Brown of Union Theo-

logical Seminary, and one to study the common elements of worship among the Protestant denominations headed by Dr. Clarence H. Wilson.

Radio Services.—Religious messages by radio were carried out in 364 weekly programs under the sponsorship of the council broadcast from coast to coast. Three Sunday afternoon services were conducted except during the Summer months and there were also daily morning devotions and two midweek periods of worship through song by radio. Fifty thousand requests for copies of religious radio messages were received and filled by the council in the year 1932. An equal number of letters expressing appreciation of the services were also received. It is estimated that millions of listeners heard the broadcasts.

Church Attendance.—Reports from 25 church federations throughout the country indicated that radio services neither increased nor decreased church attendance and admitted that thousands of persons unreached by the churches were influenced to take an interest in the Christian religion. The Sunday afternoon speakers over the radio during the year were S. Parkes Cadman, Daniel A. Poling, Harry Emerson Fosdick, Ralph W. Sockman, J. Stanley Durkee, Charles L. Goodell, Frederick H. Knubel, Paul E. Scherer, Frederick K. Stamm and Stanley High. About 300 clergyman officiated at the daily morning devotions.

Penitence and Prayer.—A special period of penitence and prayer for guidance in face of the difficulties being experienced because of the business depression throughout the world was promoted during the week of Oct. 2-8 in all churches. In connection with this, 137,000 copies of an inspirational pamphlet were distributed giving Scripture readings, meditations and suggestions for prayers.

Unemployment Relief.—Another pamphlet of practical suggestions for individual churches on the subject of unemployment relief was also distributed widely to prompt the churches of all denominations to cooperate in the winter of 1932-33 in what was to be probably the most extensive program of charity ever undertaken in the his-

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tory of the United States. Early in 1932 a joint statement on unemployment was issued by the Federal Council, Roman Catholic and Jewish organizations. This called for adequate public works, unemployment insurance, a redistribution of wealth and income, and economic planning. The industrial secretary of the Council also joined with representatives of the other groups in a public hearing and radio broadcast at Washington, D. C., in June, 1932, favoring adequate relief measures. A special fund for relief and rehabilitation of unemployed miners in West Virginia and Kentucky was raised and a large supply of clothing contributed early in the year for distribution by the American Friends Service Committee.

Independent Survey.—Four clergymen representing a group of 21 Protestant ministers in New York City also made a brief tour of coal mining districts in southeastern Kentucky. The group memorialized the United States Senate, urging the passage of the Costigan-Cutting resolution calling for an investigation which failed to materialize. Dr. Harry Emerson Fosdick was leader of the group. The four who made the trip were the Rev. W. B. Spofford, executive secretary of the Church League for Industrial Democracy; the Rev. C. Rankin Barnes, executive secretary of the department of Christian Social Service of the Protestant Episcopal Church; the Rev. Dr. Reinhold Niebuhr of the faculty of Union Theological Seminary and the Rev. Cameron Hall, pastor of Christ Presbyterian Church, New York City.

WORLD SUNDAY SCHOOL CONVENTION

Conferences and Exhibits.—The eleventh quadrennial World Sunday School Convention was opened July 25 in the Municipal Theatre at Rio de Janeiro, Brazil. Six seminar groups were conducted mornings and two general sessions were held each day. The convention closed July 31. Three popular conference meetings were held on each of five selected topics in churches and halls of the city. Dr. George Stewart conducted an inter-

national Youth Council session at Benet College. A pageant given twice and an educational exhibit added to the success of the convention. The exhibit was displayed in the rooms of the School of Fine Arts along with a Temple of Religious Art consisting of 500 color reproductions of masterpieces. On Sunday of convention week it was estimated that 10,000 persons attended an outdoor meeting in a large park in the centre of the city where messages were given by representatives of 33 nations. The delegates enrolled numbered 1,619. There were 11 general sessions and 75 auxiliary meetings. The convention *Who's Who* listed 96 participants on the programs who came from all continents. At times the audiences contained more than 2,000 persons. A number of social gatherings were also held. The twelfth World Sunday School Convention in 1936 will be held in Scandinavia.

COMMUNITY CHURCH WORKERS

A United Church.—The sixth biennial conference of the Community Church Workers at Buffalo, May 18-20, was a meeting for individuals who are working out programs for community or federated churches. The atmosphere was one of free fellowship. The conference theme was "A United Church for the United States."

Constitution.—A constitution was adopted and committees under it were appointed to work out problems in community religion in rural, urban, suburban, college and university centres, church extension and world service, literature, religious education and young people, finance and a ten-year program of expansion and promotion. The latter plan was given impetus through the setting up of a trust fund of \$50,000 bequeathed by William H. Hoover, of North Canton, O. Richard E. Shields, executive secretary, reported the incorporation of the organization under the laws of the State of Illinois and was made chairman of the committee on the ten-year program. Among the objects contained in the act of incorporation perhaps the most outstanding is that of helping to reduce competition and

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the overlapping of effort in religious organization and activity by placing cooperation above competition in the religious and philanthropic activities of American communities.

FOREIGN MISSIONS

Japanese Higher Education.—Visits made to all Christian schools in Japan by a commission of four Americans and eight Japanese, started Oct. 1, 1931, were made the subject of a report in the Spring of 1932 on Christian education among the Japanese. The Americans were Dr. G. Bromley Oxnam, president of Depauw University; Dr. Frank W. Padelford, chairman, secretary of the Board of Education of the Northern Baptist Convention; Dr. Edward Rynearson, director of Vocational Guidance in Pittsburgh Public Schools and Miss Ruth F. Woodsmall, secretary of the foreign division of the national board of the Y. W. C. A. The commission was appointed by the International Missionary Council cooperating with the Foreign Missions Conference of North America and the National Christian Council and Christian Education Association of Japan.

Problems of Graduates.—Two conferences were held at Tokyo in October and December, 1931. Six questionnaires had been sent out previously to leaders and educators in which was requested information on financial, spiritual and occupational problems met by graduates of the Christian schools in Japan. The chapters in the report included reports on the system of government education in Japan and the place of Christian education. Among other things the report emphasized the need of a strong body of laymen in all professions and businesses who are highly educated and able to lead public thought on a high plane. The report found Christianity had made its most rapid progress in Japan among the intelligentsia. The commission expressed hope for the success of the Kingdom of God movement which has grown up around Toyohiko Kagawa as a means of carrying the Christian message to the common people. Equal emphasis was placed on continuing to

make progress through the Christian schools among the educated classes.

Church Historians.—A commission of church historians which began in September, 1931, to gather information by visiting the leading colleges and theological seminaries in Japan, Korea, China, the Philippines and India, completed their report in March, 1932. The primary purpose of this survey was to study the ways in which students should be trained to serve as missionaries and also to learn how the younger churches in the Orient are keeping records of their vital statistics and the history of the progress of Christianity there. It was desired to bring back to this country a knowledge of conditions which would enable American schools to be of greater service in training students to become missionaries in the foreign field.

International Missionary Committee.—The commission was composed of Professor Shirley Jackson Case of Chicago University; Professor W. D. Schermerhorn of the Garrett Bible Institute at Evanston, Ill. and the Rev. E. R. Morgan of Birmingham, England. A report of their findings was given at a meeting in Herrnhut, Germany, of the interim committee of the International Missionary Council, from June 23 to July 4. The committee had as its chairman John R. Mott. It was composed of 50 delegates chosen by national church and missionary bodies which constitute the council. It meets every two or three years in periods between sessions of the full council, which last met in Jerusalem in 1928. In the Summer of 1932 at Herrnhut reports were also given by representatives of the various activities sponsored wholly or in part by the council.

The Far East.—Newton Rosell, who represented Canada at the first assembly of the League of Nations, and is president of the Canadian Institute of International Affairs described for the benefit of the delegates at Herrnhut the proposals of the sponsors of the League of Nations idea, the work of the International Labor Office at Geneva, the Permanent Court of International Justice, and the Kellogg-Briand Peace pact. As vice-chairman

ROMAN CATHOLIC CHURCH

of the Institute of Pacific Relations, he had recently made a study of problems in the Far East. He described the situation there as a challenge to the council.

African Mining Problems.—The first attempt at field investigation was made in July when a commission headed by J. Merle Davis, representing the Department of Social and Industrial Research of the Council, with headquarters at Geneva, left to penetrate the Belgian Congo and make an inquiry into conditions in the mining district of Katanga and Kasai provinces. Mr. Davis described the aims of the commission at Herrnhut before starting. The object was to determine specifically how mining organizations, governments and missionaries can cooperate in the African copper belt to create a new Christian African

community to supplant tribal systems there. The other members of the commission were Leo Marquard, lecturer in history at Grey College, Bloemfontein; A. E. G. Robinson, lecturer in economics at Cambridge University and Charles W. Coulter, sociologist of Ohio Wesleyan University. The commission was expected to return from Africa in late December or early in 1933. The project was financed by the Carnegie Corporation of New York.

Agricultural Missions.—The future spiritual as well as material prosperity of all nations was the subject of discussion at the annual meeting of the International Association of Agricultural Missions, in New York City, in December. The belief was expressed that upon the welfare of the farmers depended the welfare of all other interests.

ROMAN CATHOLIC CHURCH

BY JOHN B. KELLY

SPIRITUAL DIRECTOR, CATHOLIC WRITERS' GUILD OF AMERICA, INC.

CATHOLIC POPULATION

The latest statistics available present the Catholic population of the United States as numbering 20,236,391, which is an increase of 21,293 members over 1931 reports presented by the diocesan chanceries.

PRELATES AND CLERGY

Consecrations.—In the hierarchy there are 123 prelates including 4 Cardinals who, being Archbishops, make the total number of the latter 17. There are 106 Bishops. Among the most recent to be consecrated are Most Reverend Thomas Gorman, Bishop of Reno, Nevada, a diocese erected in 1931; Most Reverend James E. Kearney, Bishop of Salt Lake City, Utah; Most Reverend Monsignor Bernard, O.S.B., installed as Prefect Apostolic of the Bahamas; Most Reverend Francis J. Spellman, Auxiliary Bishop of Boston, Mass.; Most Reverend James J. McFadden, Auxiliary Bishop of Cleveland, Ohio; Most Reverend Joseph E. McCarthy,

Bishop of Portland, Me. Bishop Peterson is placed in the See of Manchester, N. H. Bishop John J. Mitty, D.D., was elevated to the rank of Coadjutor Archbishop to Archbishop Hanna of San Francisco. Most Reverend John G. Murray, D.D., was installed as Archbishop of St. Paul, Minn.

Priests and Converts.—The Clergy, inclusive of priests in Religious Orders and the diocesan bodies number 28,297 which is an increase of 433 ordained during the past year. This averages one priest to 715 Roman Catholics. Converts to the Catholic faith in the past year number 40,269, indicating an increase of 741 the year previous.

CHURCH WORK

The Seminaries number 172, representing an increase of 27 newly established during the past year, and the seminarians number 19,443. There are 18,152 churches representing 12,484 parishes with resident priests. The Missions number 5,668.

XVII. RELIGION AND RELIGIOUS ORGANIZATIONS

Among events chronicled in the records of Catholic Charities are the election of Monsignor Robert F. Keegan as the head of the National Conference of Catholic Charities. The Society for the Propagation of the Faith reports distribution of \$481,258.43.

EDUCATION

In the educational sphere there are 168 colleges for men, and academies for women number 640. There are 7514 Parochial Schools established in the United States which have enrolled in the student bodies 2,277,191 pupils. There has been a change in the tabulation of the latter in the *Catholic Director* of 1932 because of making a separate item of the high school pupils. There are 937 high schools in which 144,392 students are enrolled. The parish school roll nears 3,000,000. There have been remarkable gains in Catholic Vacation Schools. Among educational events to be noted are the establishment of the first Catholic Negro College in the United States; the National Federation of the Catholic Evidence Guild, officially established this year, and the awarding of the Laetare Medal to Dr. S. J. Maher of New Haven, Conn.

CANONIZATION PROCEDURE

The outstanding canonization procedure of interest to Americans is to

be found in the preliminary measures taken in behalf of Keteri Tehakwitha, the Indian girl whose cause is now before the Sacred Congregation. Steps have been taken for the beatification of Father Damian.

MISCELLANEOUS

The Knights of Columbus and the Holy Name Society of New York City celebrated their Golden Jubilee this year.

About three thousand Americans attended the Eucharistic Congress held in Dublin, Ireland, in June.

NECROLOGY

Among the outstanding Catholic figures who died during the past year are Bishop Daniel J. Curley of Syracuse, N. Y.; Most Reverend George J. Finnegan, C.S.C., Bishop of Helena, Mont.; Bishop Van de Ven of Alexandria, La.; Rev. Francis P. Duffy, D.D., war-time Chaplain of the Rainbow Division, 69th N. G., N. Y.; Brother Fidelis, 96 years, the oldest of Christian Brothers in the United States; Right Reverend Thomas J. Shahan, D.D., of the Catholic University, Washington, D. C.; Reverend Mother Marie Dionysia of the Sisters of Charity, Mt. St. Vincent, N. Y. Admiral Benson and Dr. Austin J. O'Malley are among the prominent Laity deceased.

THE ORIENTAL ORTHODOX CHURCH

BY WILLIAM CHAUNCEY EMHARDT

NATIONAL COUNCIL OF THE PROTESTANT EPISCOPAL CHURCH IN THE UNITED STATES

RELATIONSHIP TO ANGLICAN COMMUNION

Progress in relationship of the Eastern Churches to the Anglican Communion has assumed an even more friendly aspect during the past year. The most important item has been the publication of the report of the Joint Doctrinal Commission appointed by the Ecumenical Patriarch and the Archbishop of Canterbury for consultation on the

points of agreement and difference between the Anglican and the Eastern Orthodox Churches, early this year. While much of the report is theological in interest, the two chief sections treat of suggestions as to economic intercommunion, that is intercommunion under special circumstances, which are as follows: In the Resumé which was accepted by the Lambeth Conference reference was made to the admission un-

THE ORIENTAL ORTHODOX CHURCH

der special circumstances of members of the Eastern Orthodox Church to the Sacraments and other ministrations of the Anglican Bishops and Clergy. The Commission has also received from the Bishop of Fulham, as representing the work of the Anglican Church in Northern and Central Europe, and the Bishop of Northern Indiana on behalf of the Episcopal Church in America, statements showing the urgency of arrangements such as those proposed for the spiritual life of many who are separated from the ministrations of their own Communion in both Churches. The Commission desires to lay all these matters before the Synods of the Anglican Communion and of the Holy Eastern Orthodox Church, and to ask them to make a decision as soon as possible on this urgent problem.

The matter, however, of prime importance is the section pertaining to the Christian Revelation and Scripture and Tradition, concerning which theologians of the two communions arrive at the following conclusions.

THE CHRISTIAN REVELATION

We accept the Divine Revelation which was delivered once and for all in Our Lord Jesus Christ; and we receive it as it is revealed in the Holy Scriptures, and as it has been made known and handed down from the Apostles in the Tradition of the Church throughout the ages by the operation of the Holy Spirit.

SCRIPTURE AND TRADITION

We agree that we receive the Divine Revelation in Our Lord Jesus Christ through Scripture and Tradition. By Scripture we mean the Canon of Scripture as it is defined by St. Athanasius and as it has been received by the whole Catholic Church. As regards the other books which are sometimes called Deuterocanonical, sometimes *ἀναγινωσκόμενα*, we also accept the teaching of St. Athanasius: "For greater exactness I add this also . . . that there are other books besides these not included in the Canon but appointed

by the Fathers to be read by those who newly join us and wish to be instructed in the word of godliness. . . . The former books . . . being included in the Canon, the latter being only read." And the teaching of St. Jerome: "That the Church may read them for the edification of the people, not for the confirmation of the authority of ecclesiastical dogmas." Further, the representatives of the Anglican Church would say: "Holy Scripture containeth all things necessary to salvation: so that whatsoever is not read therein, nor may be proved thereby, is not to be required of any man that it should be believed as an Article of the Faith or be thought requisite or necessary to salvation." As St. Athanasius says: "The sacred and inspired Scriptures are sufficient to declare the truth." And elsewhere: "These are the fountains of salvation that he who thirsts may be satisfied with the oracles contained in them. In these books alone is proclaimed the doctrine of godliness. Let no man add to them nor take aught from them." And as St. Augustine says: "In these things which are plainly laid down in Scripture all things are found which cover Faith and Morals—namely Hope and Love."

The representatives of the Eastern Orthodox Church would say: "We believe that the Holy Scripture is completed, explained and interpreted by the Holy Tradition." As St. Basil says: "Of the dogmas and preachings which are kept in the Church, some are derived from the written doctrine, others we have received by way of Apostolic Tradition as they were secretly transmitted to us, and these two classes are of equal value to piety. No one will dispute this, at all events no one who has had the least experience of ecclesiastical institutions. For if we were to attempt to reject the unwritten customs on the ground that they are therefore of no great importance we would unwittingly inflict a deadly wound on the Gospel, or rather we should make the matter of our preaching a name and

VII. RELIGION AND RELIGIOUS ORGANIZATIONS

nothing more. For example (to mention first the earliest and most common), who taught us in writing to sign with the sign of the Cross those who hope on the Name of Our Lord Jesus Christ? Where have we been taught in Scripture to turn to the East during Prayer? What saint was it that bequeathed to us in writing the words of invocation at the showing of the Eucharistic bread and the cup of blessing? For we are not satisfied with what the Apostle or the Evangelist recorded, but we add a preface and an epilogue which we have received from unwritten tradition, and which we consider to be of great import in celebrating the mystery."

Having made the above statements it was agreed that everything necessary for salvation can be founded upon Holy Scripture as completed, explained, interpreted, and understood in the Holy Tradition, by the guidance of the Holy Spirit residing in the Church: We agree that by Holy Tradition we mean the truths which came down from Our Lord and the Apostles through the Fathers which are confessed unanimously and continuously in the Undivided

Church, and are taught by the Church under the guidance of the Holy Spirit. We agree that nothing contained in Tradition is contrary to the Scriptures. Though these two may be logically defined and distinguished, yet they cannot be separated from each other nor from the Church.

MEMBERS OF THE JOINT DOCTRINAL COMMISSION

The Anglican members of the Commission were: The Bishop of Gloucester (Chairman); Archbishop of Dublin, Bishop of Northern Indiana, Bishop of Gibraltar, Bishop of Fulham, Dr. Goudge, Dr. Grensted, Dr. J. A. Douglas, and Rev. Philip Usher (Secretary). The Orthodox representatives were: The Metropolitan of Thyateria (Constantinople and Jerusalem), The Great Archimandrite Michael Constantinides (Alexandria), The Metropolitan of Tyre and Sidon (Antioch), Bishop of Novi-Sad (Yugoslavia), Metropolitan of Bukovina (Rumania), Metropolitan of Paphos (Cyprus), Metropolitan of Trikkas and Stagon (Greece), and Professor Nicholas S. Arseniev (Poland).

JUDAISM AND JEWISH COMMUNAL AFFAIRS

BY BERNARD G. RICHARDS

DIRECTOR, JEWISH INFORMATION BUREAU

ECONOMIC DIFFICULTIES

The Jewish religious and communal activities for 1932, cannot as on previous occasions, be described as a period of growth and development, except as there may have been a certain physical expansion occasioned by the natural growth of population. On the whole, however, the economic depression has cast a shadow over a bright horizon of many promising spiritual and humanitarian efforts, forcing various institutions and organizations into financial retrenchments and reductions or discontinuance of activities. Many congregations, Jewish Centers, and religious schools, built in prosperous

times on a rather broad scale, found themselves in difficulty by the marked decrease in membership dues, and contributions, and when temporary adjustments could not be affected, the associations had temporarily either to disband, or to join forces with other organizations. As an instance of the situation which confronted various institutions, may be cited the fact that the Hebrew Union College of Cincinnati had to close its School for Teachers in New York, after an existence of nine years, during which time it graduated 976 students as teachers in the religious schools of reform congregations.

JUDAISM AND JEWISH COMMUNAL AFFAIRS

GENERAL ACTIVITIES

One comforting, or at least notable feature of the year, has been an impetus gained by the movement for Jewish adult education—inevitably assuming a religious hue—resulting in the establishment of many classes and courses of study, sponsored by congregations and other bodies interested in such work. As heretofore, the various activities of the year may be classified as follows: 1. Religious education for the young and the training of rabbis, teachers, and social workers. 2. Activities of synagogues, temples, Jewish Centers, and related religious and educational endeavors. 3. Work of charity among the needy at home and the destitute abroad still suffering from the aftermath of the Great War. 4. Support for the upbuilding of the Jewish National Homeland in Palestine. 5. Efforts to protect the interests and maintain the rights of Jewish minorities in Eastern European lands.

EDUCATION

Religious Education.—The Jewish Educational Association of New York, Israel Unterberg, President, which, under the active leadership of Bernard Semel, honorary secretary, encourages the establishment of, and endows, various schools, has campaigned and secured funds for its activities, these being paralleled by different bodies in a number of large cities west and south. In several of these cities, like Chicago, Boston, Cleveland, Detroit, St. Louis, San Francisco, etc., there exist colleges or schools for the training of religious teachers for the requirements of the various schools in different communities, those which are attached to synagogues and temples as well as those which are conducted independently by associations of Jewish men and women especially interested in the subject.

Theological Seminaries.—The four large Jewish colleges for training of rabbis and teachers of religion have witnessed a year of considerable activity and progress, two of these institutions, namely the Hebrew Union College in Cincinnati, Dr. Julian Morgenstern, President, and the Jewish Theological Seminary of America,

New York City, Dr. Cyrus Adler, President, have, as heretofore, made significant additions to the remarkable collections of Jewish books and manuscripts in their libraries. The newer Jewish institute of Religion, New York City, Dr. Stephen S. Wise, President, has entered upon its ninth year of activities with considerable enlargement of its faculty and increase in the student body. The ultra orthodox *Yeshiva*, or Isaac Elchanan Seminary, Dr. Bernard Revel, President, has gone ahead with its plan of conducting the old-time *Yeshiva* along the lines of an up-to-date college, which combines a Jewish and Talmudic education with a modern course of college studies, and for the first time creates a college modeled along parochial lines. The new building is located at Amsterdam Avenue and 184th Street, New York City.

Youth Organizations.—The emphasis placed in recent years upon the need of educational work among Jewish children and the youth, has found a response in the formation of a number of youth organizations and cultural activities, and these bodies, like the Young Judea, Young Israel, *Avukah*, Junior *Hadassah*, Menorah, Intercollegiate Association, Hillel Foundation, etc., have continued their different activities despite the present difficulty of securing sufficient financial support. Sentiment, at any rate, in favor of more intensive educational and cultural activities, has grown tremendously in the last two years, and as soon as economic conditions permit a revival of such effort is most likely to be ushered in.

Jewish Publication Society.—Identified with these interests is the work of the Jewish Publication Society of America, with offices in Philadelphia, Simon Miller, President, which is now passing into its forty-fourth year, and which has, in the course of its history, built up a considerable and significant library of books in the English language, relating to Judaism, Jewish life and history.

DEVELOPMENTS IN PALESTINE

New High Commission.—On Nov. 20, 1931, Sir Arthur Grenfell Wau-

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chope succeeded Sir John Chancellor as High Commissioner for Palestine. Sir Arthur adopted a policy of conciliation and friendship toward all Palestinians; this resulted in strengthening the bonds of amity between Arabs and Jews.

Arab-Jewish Relations. — Several events occurred which strengthened the cause of Arab-Jewish friendship. At the graduation exercises of the Mikveh Israel Agricultural Society, at which 65 students received their diplomas, many Arab *effendis* from the neighboring towns and villages attended; one of the graduates was an Arab boy, the son of a sheik from near Zichron Jacob. A new colony, *Gan Yavne*, was founded in November by a group of Jews from the United States; Arabs from near Tel-Aviv assisted in the laying of the actual foundations. Sir Arthur Wauchope himself at the first Palestine fruit show, held at Jaffa in July, gave 1200 pounds to establish a horticultural station at Farradyia, near Safed, also a smaller gift of 300 pounds for the establishing of village school gardens.

Population. — The census taken in November indicated that there were 1,035,000 persons in Palestine; the Jews numbered 175,000; Moslems, 759,950; Christians 90,600. In Jerusalem 90,526 persons are living at present, of whom 51,300 are Jews.

Clashes. — Occasional small clashes occurred between Jews and Arabs, and several Jews were killed by Arabs. Further, the Arab nationalistic leaders and the Pan-Islamic Congress attempted anti-Jewish agitations, but with little success.

Economic Conditions. — Palestine remained practically free from unemployment during the past year, and its economic condition was good. However, adverse economic conditions prevailing in other countries led to a decline in contributions to Palestinian institutions. As a result, the Jewish Agency for Palestine seriously curtailed the budget, especially for education.

EUROPEAN RELIEF

The American Joint Distribution Committee, Felix M. Warburg, chairman, has continued to cope with the

problem of relief for destitute Jewish families in Eastern Europe where economic conditions have aggravated the prevailing poverty and distress in communities which still carry marks of depredation left behind by the great War. This work of relief is more and more taking the form of agencies of self-help and reconstruction intended ultimately to make the victims of present conditions self-supporting. In Soviet Russia and several other countries, attempts have been made to settle Jewish families on the soil with considerable success in some instances.

PROTECTION OF MINORITIES

Work for the protection of Jewish Minorities in Eastern Europe and the various forms of discrimination against the Jewish race, has, as heretofore, been carried forward by the American Jewish Committee, Dr. Cyrus Adler, president, The American Jewish Congress, Bernard S. Deutsch, president, with occasional cooperation of the Independent Order *B'nai B'rith*, Alfred M. Cohen, president, and other organizations. Renewed attacks upon the Jews in Poland in November were made the subject of a number of representations and protests. In order to deal with the alarming recrudescence of hostility to the Jews in different parts of Eastern Europe and especially with the menace presented by the Nazis movement in Germany, the American Jewish Congress has taken the lead in reviving the idea of a Jewish World Congress, dating back some thirty years, and which is now again becoming the subject of considerable controversy, the American Jewish Committee and other bodies being opposed to such a gathering. The Congress, nevertheless, assembled a preliminary conference which was held in Geneva last August and which was attended by about 100 delegates from different countries. The preliminary conference decided to convene a Jewish World Congress in the Summer of 1934 on the basis of universal suffrage, every Jewish community in the world having the right to send delegates. The conference was presided over by Dr.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

Stephen S. Wise, honorary president | as chief advocate of the plan, delivered the address.
of the American Jewish Congress who,

DIVISION XVII

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

NATIONAL CHURCHES

AMERICAN THEOSOPHICAL SOCIETY, Wheaton, Ill.
AMERICAN UNITARIAN ASSN., 25 Beacon St., Boston, Mass.
ANGLICAN UNIVERSAL CHURCH OF CHRIST, IN THE U. S. A., 22 E. 38th St., New York City.
BOARD OF DIRECTORS OF THE GENERAL SYNOD OF THE REFORMED CHURCH IN AMERICA, 25 E. 22nd St., New York City.
CHRISTIAN SCIENCE CHURCH, 11 W. 42nd St., New York City.
CONGREGATIONAL CHRISTIAN GENERAL COUNCIL, 287 Fourth Ave., New York City.
FREETHINKERS' OF AMERICA, INC., 317 W. 34th St., New York City.
FRIENDS' GENERAL CONFERENCE, 1515 Cherry St., Philadelphia, Pa.
GENERAL CONFERENCE OF SEVENTH-DAY ADVENTISTS, 140 Eastern Ave., N. W., Takoma Park, Washington, D. C.
GENERAL COUNCIL OF THE PRESBYTERIAN CHURCH IN THE U. S. A., 156 Fifth Avenue, New York City.
NATIONAL LUTHERAN COUNCIL IN AMERICA, 39 E. 35th St., New York City.
NATIONALIST SPIRITUAL ASSN., 600 Penn Ave., S. E., Washington, D. C.
NORTHERN BAPTIST CONVENTION, 152 Madison Ave., New York City.
SOCIETY FOR ETHICAL CULTURE OF NEW YORK, 2 W. 64th St., New York City.
UNION OF AMERICAN HEBREW CONGREGATIONS, Merchants' Building, Cincinnati, Ohio.
UNION OF ORTHODOX JEWISH CONGREGATIONS OF AMERICA, Amsterdam Ave. & 186th St., New York City.
UNITED LUTHERAN CHURCH IN AMERICA, 39 E. 35th St., New York City.

UNITED SYNAGOGUE OF AMERICA, 531 W. 123rd St., New York City.
UNIVERSALIST GENERAL CONVENTION, 176 Newburg St., Boston, Mass.
VEDANTA SOCIETY, 34 W. 71st St., New York City.
VOLUNTEERS OF AMERICA, 34 W. 28th St., New York City.

INTERNATIONAL ORGANIZATIONS

ALLIANCE OF REFORMED CHURCHES THROUGHOUT THE WORLD HOLDING THE PRESBYTERIAN SYSTEM, 510 Witherspoon Bldg., Philadelphia, Pa.
ASSN. FOR THE PROMOTION OF CHRISTIAN UNITY, Chamber of Commerce Bldg., Room 412, Indianapolis, Ind.
BAPTIST WORLD ALLIANCE, Bates College, Lewiston, Me.
CENTRAL BUREAU OF EVANGELICAL CHURCHES IN EUROPE, 105 E. 22nd St., New York City.
COMMITTEE ON COOPERATION IN LATIN AMERICA, 419 Fourth Ave., New York City.
COMMITTEE ON FRIENDLY RELATIONS AMONG FOREIGN STUDENTS, 347 Madison Ave., New York City.
CONTINUATION COMMITTEE OF WORLD CONFERENCE ON FAITH AND ORDER, P. O. Box 226, Boston, Mass.
ECUMENICAL METHODIST CONFERENCE, 145 Westervelt Ave., Plainfield, N. J.
INTERNATIONAL ASSN. OF DAILY VACATION BIBLE SCHOOLS, 100 E. 42nd St., New York City.
INTERNATIONAL CONGREGATIONAL COUNCIL, 14 Beacon St., Boston, Mass.
INTERNATIONAL CONGRESS OF RELIGIOUS LIBERALS, 25 Beacon St., Boston, Mass.
INTERNATIONAL COUNCIL OF RELIGIOUS EDUCATION, 203 N. Wabash Ave., Chicago, Ill.

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INTERNATIONAL EVANGELISTIC BUREAU OF THE U. S. A., 1111 Walnut St., Cairo, Ill.
 INTERNATIONAL SOCIETY OF CHRISTIAN ENDEAVOR, 41 Mt. Vernon St., Boston, Mass.
 LUTHERAN WORLD CONVENTION, 39 E. 35th St., New York City.
 NEAR EAST COLLEGE ASSOCIATION, INC., 18 E. 41st St., New York City.
 UNIVERSAL CHRISTIAN COUNCIL ON LIFE AND WORK, 105 E. 22nd St., New York City.
 WORLD'S STUDENT CHRISTIAN FEDERATION, 347 Madison Ave., New York City.
 WORLD'S SUNDAY SCHOOL ASSN., 1 Madison Ave., New York City.
 WORLD UNITY FOUNDATION, 4 E. 52nd St., New York City.

INTERCHURCH ORGANIZATIONS

AMERICAN SUNDAY SCHOOL UNION, 1816 Chestnut St., Philadelphia, Pa.
 CHAPLAINS' AID ASSN., 401 W. 59th St., New York City.
 CHURCH PEACE UNION, 70 Fifth Ave., New York City.
 COMMITTEE ON RELIGIOUS WORK IN THE CANAL ZONE (Union Churches), 105 E. 22nd St., New York City.
 CONFERENCE OF THEOLOGICAL SEMINARIES AND COLLEGES, Lancaster, Pa.
 COUNCIL OF CHURCH BOARDS OF EDUCATION, 111 Fifth Ave., New York City.
 FEDERAL COUNCIL OF CHURCHES OF CHRIST IN AMERICA, 105 E. 22nd St., New York City.
 FELLOWSHIP OF CHRISTIAN COOPERATION, 50 W. Broad St., Columbus, O.
 FELLOWSHIP OF FAITHS, 105 E. 22nd St., New York City.
 FELLOWSHIP OF RECONCILIATION, Bible House, New York City.
 NATIONAL COUNCIL OF PROTESTANT EPISCOPAL CHURCHES, 281 Fourth Ave., New York City.
 NATIONAL FEDERATION OF RELIGIOUS LIBERALS, 700 Oakwood Boulevard, Chicago, Ill.
 THREEFOLD MOVEMENT, 105 E. 22nd St., New York City.

AUXILIARY ORGANIZATIONS

CATHOLIC CHURCH EXTENSION SOCIETY OF THE U. S. A., 180 N. Wabash Ave., Chicago, Ill.

CATHOLIC GUARDIAN SOCIETY, 485 Madison Ave., New York City.
 CATHOLIC PROTECTIVE SOCIETY, 477 Madison Ave., New York City.
 CHURCH LEAGUE FOR INDUSTRIAL DEMOCRACY, 154 Nassau St., New York City.
 COMMUNITY CHURCH WORKERS OF THE U.S.A., THE, 1509 Chicago Temple, 77 W. Washington St., Chicago, Ill.
 EPWORTH LEAGUE OF THE METHODIST EPISCOPAL CHURCH, 740 Rush St., Chicago, Ill.
 INSTITUTE OF SOCIAL AND RELIGIOUS RESEARCH, 230 Park Ave., New York City.
 LORD'S DAY ALLIANCE, 156 Fifth Ave., New York City.
 NATIONAL CONFERENCE OF JEWS AND CHRISTIANS, 289 Fourth Ave., New York City.
 UNITED STEWARDSHIP COUNCIL, 152 Madison Ave., New York City.
 WOMAN'S CHRISTIAN TEMPERANCE UNION, Evanston, Ill.
 WOMAN'S NATIONAL SABBATH ALLIANCE, 156 Fifth Ave., New York City.
 YOUNG MEN'S CHRISTIAN ASSN., 347 Madison Ave., New York City.
 YOUNG MEN'S HEBREW ASSN., 71 W. 47th St., New York City.
 YOUNG WOMEN'S CHRISTIAN ASSN., 600 Lexington Ave., New York City.
 YOUNG WOMEN'S HEBREW ASSN., 71 W. 47th St., New York City.

RELIGIOUS PUBLICATIONS

AMERICAN BAPTIST PUBLICATION SOCIETY, 1701 Chestnut St., Philadelphia, Pa.
 AMERICAN BIBLE SOCIETY, Bible House, New York City.
 AMERICAN TRACT SOCIETY, 7 W. 45th St., New York City.
 CHICAGO TRACT SOCIETY, 440 S. Dearborn St., Chicago, Ill.
 GIDEONS, 140 E. Dearborn St., Chicago, Ill.
 INSTITUTE OF SOCIAL AND RELIGIOUS RESEARCH, 230 Park Ave., New York City.
 NATIONAL TESTAMENT AND TRACT LEAGUE, 200 Kellogg Bldg., Washington, D. C.
 POCKET TESTAMENT LEAGUE, 156 Fifth Ave., New York City.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

RELIGIOUS EDUCATION ASSN., 308 N. Michigan Ave., Chicago, Ill.

SOCIETY FOR THE PROPAGATION OF THE FAITH, 462 Madison Ave., New York City.

SOCIETY OF BIBLICAL LITERATURE AND EXEGESIS, Broadway at 120th St., New York City.

MISSIONARY

AGRICULTURE MISSIONS FOUNDATION, 419 Fourth Ave., New York City.

AMERICAN BOARD OF COMMISSIONERS FOR FOREIGN MISSIONS, 14 Beacon St., Boston, Mass.

AMERICAN McALL ASSN., 1713 Sansom St., Philadelphia, Pa.

AMERICAN MISSION OF LEPERS, 156 Fifth Ave., New York City.

CHRISTIAN AND MISSIONARY ALLIANCE, 260 W. 44th St., New York City.

COMMITTEE OF REFERENCE AND COUNCIL, 419 Fourth Ave., New York City.

COUNCIL OF WOMEN FOR HOME MIS-

SIONS, 105 E. 22nd St., New York City.

FEDERATION OF WOMEN'S BOARDS OF FOREIGN MISSIONS, 419 Fourth Ave., New York City.

FOREIGN MISSION CONFERENCE OF N. A., 419 Fourth Ave., New York City.

HOME MISSIONS COUNCIL, 105 E. 22nd St., New York City.

INTERNATIONAL MISSIONARY COUNCIL, 419 Fourth Ave., New York City.

MISSIONARY EDUCATION MOVEMENT OF THE UNITED STATES AND CANADA, 150 Fifth Ave., New York City.

NATIONAL COUNCIL OF JEWISH WOMEN, 625 Madison Ave., New York City.

NEAR EAST RELIEF, 149 Fifth Ave., New York City.

STUDENT VOLUNTEER MOVEMENT FOR FOREIGN MISSIONS, 419 Fourth Ave., New York City.

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PART SIX

SCIENCE—PRINCIPLES AND APPLICATION

DIVISION XVIII

MATHEMATICS AND ASTRONOMY

MATHEMATICS

BY TOMLINSON FORT

PROFESSOR, LEHIGH UNIVERSITY

MEETINGS

The American Mathematical Society held meetings as follows: New York City, March 25-26; Chicago, April 8-9; Los Angeles, August 30-September 2; New York City, October 29; Ames, Iowa, November 25-26; Atlantic City, December 27-30.

The Mathematical Association of America held meetings at Los Angeles, August 29-30 and at Atlantic City, December 27-28. There were also sectional meetings of the Association from time to time at various places.

The National Council of Teachers of Mathematics met February 19-20 at Washington, D. C. This body, which was organized in 1920 with seventy-five charter members, now has a membership of nearly 6,000 representing every state in the Union and many foreign countries.

Pi Mu Epsilon, honorary mathematical fraternity, held its annual meeting in Atlantic City in connection with the meeting of the American Association for the Advancement of Science.

The Quadrennial International Congress of Mathematicians was held at Zurich, Switzerland, September 4-12. Twenty lectures in various fields

were given by invited speakers. Two of these were Americans, namely Professor J. W. Alexander of Princeton and Professor Marston Morse of Harvard. Sixty-eight mathematicians from the United States and Canada were present at the Congress and presented a very considerable number of papers representing the results of their own research. The official delegates from the American Mathematical Society were: R. G. D. Richardson, C. N. Moore, E. B. Stouffer and J. D. Tamarkin. Representatives of the United States Government were J. W. Alexander, H. F. Blichfeldt, Marston Morse, M. H. Stone and Oswald Veblen; those of the Mathematical Association of America were R. C. Archibald, W. D. Cairns and D. E. Smith. The mathematicians assembled at the Congress voted to abolish the International Mathematical Union which had been subjected to severe criticism and which generally was regarded as serving no useful purpose. The International Commission on the Teaching of Mathematics held several sessions under the presidency of Professor David Eugene Smith, of Columbia. Professor Jacques Hadamard of Paris was elected to act as

its president for the next four years. The Congress accepted the invitation to hold the next Congress at Oslo, Norway, four years hence.

LECTURES

Colloquium Lectures.—One of the most important activities of the American Mathematical Society is its Colloquia held in connection with summer meetings. At these some phase of mathematics is treated in a series of lectures extending through several days. Colloquium lectures on *Differential Equations From the Algebraic Standpoint* were delivered at Los Angeles by Professor J. F. Ritt of Columbia. The lectures have since appeared in book form.

Symposia.—The American Mathematical Society held symposia as follows: On the *Summation of Series* with addresses by W. A. Hurwitz and Einar Hille, and on *Applications of the Operational Calculus to Mechanics* with an address by J. von Neumann. Other lectures on invited topics before the American Mathematical Society, the Mathematical Association of America, Section A of the American Association for the Advancement of Science and other bodies were quite numerous during 1932 but are not enumerated here.

RESEARCH

Review.—About three hundred and fifty papers were presented to the American Mathematical Society during 1932. All of these were accepted by the Program Committee as embodying original research. An analysis of this vast amount of work, only a small part of which has as yet been published, is out of the question. However, attention will be called to a few papers published during the year which seem to the reviewer to be particularly noteworthy. This is done with apologies to the authors of the many fine papers which it is impossible to mention.

Analytic Functions of a Complex Variable.—No branch of analysis is of more fundamental importance to the advancement of mathematics as a whole than the theory of analytic

functions of a complex variable. And there seems to be an increasing number of papers by Americans at the present time, some of which are of first importance. A paper appearing during the past year which seems to the reviewer of particular interest is *On the Cluster Values of Analytic Functions*, by Wladimir Seidel. He studies the distribution of cluster values of certain types of analytic functions, defined throughout the interior of the unit circle, but discontinuous at the point 1. J. L. Walsh has published a series of papers on the approximation of analytic functions by polynomials. During the past year he published a monumental paper *On Interpolation and Approximation by Rational Functions with Pre-assigned Poles*. Other papers along related lines and also of fundamental importance to be published during the year were *Interpolation and Functions Analytic Interior to the Unit Circle* by J. L. Walsh, *On Certain Polynomial and Other Approximations to Analytic Functions* by Hillel Poritzky, *On Overconvergence of Sequences of Rational Functions* by J. L. Walsh, *On Approximation to a Mapping Function, by Polynomials* by O. J. Farrell.

Summation of Series.—Mention has already been made of the symposium on this subject held in New York in April. This naturally put summability much to the fore in American mathematics. However, there was considerable work that was quite independent of this symposium. Most noteworthy was the work on *Tauberian Theorems*. These gain their name from a theorem published by A. Tauber in 1897, although their most extensive development in the past has been made by G. H. Hardy and J. E. Littlewood of England. Theorems which assert the convergence of a series from its summability plus some additional condition on its terms are known as Tauberian. Norbert Wiener of the Massachusetts Institute of Technology has been extensively publishing on Tauberian Theorems. Finally in January, 1932, he published a masterly treatise on the subject in which

he develops the theory and its applications in the analytic theory of numbers. Wiener's methods and proofs are of extreme generality. Other noteworthy papers on the summation of series appeared during the year written by R. P. Agnew, Einar Hille and J. D. Tamarkin, T. H. Gronwall and C. R. Adams.

Far more general theorems on the *Reversal of the Order of Differentiation* were obtained by A. E. Currier than were previously known. Considerable advance was made in the study of the *Heat Equation* by Edward Kasner and some of his students. Contributions to the *Ergodic Theory* were made by J. von Neumann, G. D. Birkhoff, B. O. Koopman and E. Hopf. Considerable work was done in the study of *postulates* with special reference to Whitehead and Russell's *Principia Mathematica*. E. V. Huntington and B. A. Bernstein are especially to be mentioned in connection with this. Advances in the theory of *Difference Equations* were made by W. J. Trjitzinsky. *Analysis situs* continued to occupy the attention of numerous mathematicians and a number of papers by Americans were published during the year. America has been preëminent in this field for a number of years. Noteworthy advances were also made in geometry, algebra, theory of numbers, mathematical astronomy, mathematics of statistics, etc. The scope of mathematics is very wide and lack of space prevents extensive enumeration.

BOOKS

Among noteworthy books by Americans published during the year were: *Foundations of Point Set Theory*, by R. L. Moore; *Differential Equations From the Algebraic Standpoint*, by J. F. Ritt; *Linear Transformations in Hilbert Space*, by M. H. Stone; *Partial Differential Equations of Mathematical Physics*, by H. Bateman; *Projective Differential Geometry of Curves and Surfaces*, by E. P. Lane; *Treatise on Algebraic Plane Curves*, by J. L. Coolidge; *Mathematics of Relativity*, by G. Y. Rainich; *The Foundations of Differential Geometry*,

by O. Veblen and J. H. C. Whitehead; *Fourier Integrals for Practical Applications*, by G. A. Campbell and R. M. Foster; *Report of the Committee on Hydrodynamics*, by H. L. Dryden; F. D. Murnaghan, H. Bateman; *The Theory of Magnetic Susceptibilities*, by J. H. Van Vleck; *Symbolic Logic*, by C. J. Lewis and C. H. Langford; *Elementary Mathematics from an Advanced Standpoint*, by Felix Klein, translated by E. R. Hendrick and C. A. Noble; *Linguistic Analysis of Mathematics*, by Arthur F. Bentley.

It is believed that this large number of advanced books constitutes a record. The first three listed belong to the *Colloquium Series* of the American Mathematical Society. They also constitute a record publication for this series.

The usual number of textbooks for classroom use also appeared during the year. No attempt is made to enumerate them, inasmuch as they are commercial enterprises in sharp distinction to advanced treatises which usually can be published only with the aid of a subsidy.

NEW JOURNAL

A quarterly journal, *Scripta Mathematica*, devoted to the philosophy, history and expository treatment of mathematics, issued its first number in September. The editor is Jekuthiel Ginsburg. The associate editors are R. C. Archibald, C. J. Keyser, L. C. Karpinski, Gino Loria, L. G. Simons and D. E. Smith. The articles in the first issue include the following: "Thomas Jefferson and Mathematics," by David Eugene Smith; "The Meaning of Mathematics," by Cassius Jackson Keyser; "A German-American Algebra of 1937," by Lao Geneva Simons; "Rare Books in the Michigan University Library," by Louis Charles Karpinski; "An Unknown Mathematician of the 14th Century," by Jekuthiel Ginsburg; "Two Magical Manuscripts," by Joseph J. Schwartz; "The Ancient Peruvian Abacus," by L. Leland Locke; "Joseph Del Medigo on Prosthaphæresis," by Mendell Lewittes; "Maxima and Minima in Rabbinical

Literature," by David I. Golovensky; "Rabbi Jacob Ben Machir's Hebrew Translation (c. 1,300) of Menelaus's Book on the Sphere," edited from two manuscripts in the Library of the Jewish Theological Seminary of New York and translated into English by Jekuthiel Ginsburg; "The Indian Discovery of the Irrational at the Time of the Sulvasutras," by Saradakanta Ganguli; "Astronomical and Mathematical Manuscripts in the Library of the American Philosophical Society," by Pinhas Schub; "Notes and Queries," by R. C. Archibald, J. Ginsburg, E. Levias, B. Gutmann and others.

MISCELLANEOUS

Noted Foreign Mathematicians in America.—Distinguished foreign mathematicians to visit America during the year included W. Heisenberg, Albert Einstein, W. de Sitter, P. Debye and R. Courant. Not only do the greatest of European mathematicians now come to America from time to time but they are also to some extent publishing their best papers in this country. A notable illustration of this is the paper, "Theory of Cyclic Algebras over an Algebraic Number Field," by Helmut Hasse of Marburg, Germany, appearing in the *Transactions of the American Mathematical Society*. This is an extensive investigation and shows much study of the work of certain leaders in research in algebra in America, namely L. E. Dickson, A. A. Albert and J. H. M. Wedderburn.

American Mathematicians Abroad.—Mention has already been made of lectures at the International Congress. In addition, O. Veblen of Princeton, lectured at Göttingen, Hamburg and Berlin, T. R. Hollcroft lectured at Newcastle, England, and W. A. Shewhart also gave a series of lectures on mathematics of statistics in England. Einar Hille and Norbert Wiener lectured at a number of places in Europe.

Prizes and Honors to Americans.—The French Government conferred the designation *Officier d'Académie* and the decoration *palmes académiques* on Professor E. R. Hendrick of the Uni-

versity of California at Los Angeles "for services rendered to the cause of culture and science." The ceremony was performed by the French Consul at Los Angeles, M. Henri Didot, on April 13. Joseph Slepian, a mathematician working with the Westinghouse Company, was given a John Scott award for his work on gases.

National Research Fellows in Mathematics.—The following men were appointed national research fellows in mathematics for 1931-1932: E. F. Beckenbach, J. L. Doob, R. D. James, M. H. Martin, R. S. Martin, C. W. Mendel, C. B. Morrey, S. L. Robinson, A. E. Ross, P. M. Swingle, E. W. Titt, A. W. Tucker, Hassler Whitney and S. S. Wilks. This list includes renewals.

Institute for Advanced Study.—It is interesting to note that the Institute for Advanced Study under the direction of Abraham Flexner has begun with two men, Albert Einstein and Oswald Veblen, both mathematicians. It will for the present operate in quarters in the H. B. Fine mathematics building at Princeton University. Professor A. B. Coble, of the University of Illinois, was elected president of the American Mathematical Society at the December meeting in Atlantic City.

NECROLOGY

In no single year prior to 1932 has American mathematics lost so many distinguished contributors. Among those dying during 1932 or the last two months of 1931 were: E. J. Wilczynski, retired professor at the University of Chicago; J. W. Young, professor at Dartmouth, noted for his work in geometry as well as the foundations of mathematics and for his leadership in American teaching; O. D. Kellogg, professor at Harvard University, noted for his work in potential theory and allied topics; T. H. Gronwall of Columbia, distinguished for his work in analysis and applied mathematics; C. L. E. Moore, professor at Massachusetts Institute of Technology, an able worker in geometry; Charlotte A. Scott, retired pro-

fessor of Bryn Mawr, and dean of women mathematicians in this country; A. B. Chace, Chancellor of Brown University, distinguished for his work in the history of mathematics; J. C. Fields, professor at the University of Toronto, but widely known among mathematicians in the United States; Professor James E. Donahue, of the University of Vermont; Dean F. M. Hartmann, of Cooper Union; Dr. J. C. Glashan, of

Ottawa, Canada, a member of the American Mathematical Society since 1891; Alexander Knisely, of Columbia City, Ind., also a member of the American Mathematical Society since 1891; Stephen Marshall Hadley, dean and professor of mathematics at Penn College; Professor G. O. James, of Washington University; J. D. Grant, of the University of Illinois. and Professor C. G. Simpson, of Milwaukee.

ASTRONOMY

BY BANCROFT WALKER SITTERLY

ASSISTANT PROFESSOR, WESLEYAN UNIVERSITY

ORGANIZATIONS

International Astronomical Union.

—The fourth General Assembly of the International Astronomical Union was held at Cambridge, Mass., Sept. 2-9, 1932, under the presidency of Sir Frank Dyson, Astronomer Royal of England. More than 200 delegates and guests were present, representing 23 countries. The third Assembly was at Leyden, Holland, in 1928; the interval between meetings is normally three years, but it was extended to four this time, in order that delegates might observe the total solar eclipse of Aug. 31, 1932. The primary purpose of the Assembly is free discussion, and the only formal papers presented are the reports of the chairmen of more than a score of commissions, reviewing progress to date in the various fields of astronomy and formulating methods of attack on current problems. The reports are discussed and amended in open meetings of the Commissions, and then submitted to the general meeting for approval. Among the subjects of keen discussion at Cambridge may be mentioned: reduction to a single trustworthy magnitude scale of the great numbers of amateur observations of variable stars, the systematic errors of stellar parallaxes, and the relative merits of the equinoxes of 1900 and 1950 as standards of position in general star catalogs (the

equinox of 1900 prevailed). The Commission on Solar Physics had such a variety of data and problems brought before it (including those of the solar eclipse) that it divided its field among four new commissions. The Assembly elected Director Frank Schlesinger, of Yale University Observatory, to the presidency for the next three years, and accepted the invitation to meet at Paris in 1935. Following the meeting an informal symposium, on problems relating to the galactic structure and the extragalactic objects, drew a large attendance and much profitable discussion.

The American Astronomical Society met at Washington, D. C., Dec. 28-30, 1931. Abstracts of papers presented appear in *Publications of the American Astronomical Society* (vol. 7, no. 3, 1932). The summer meeting was held Sept. 2, 1932, at Cambridge, Mass. At this meeting only routine business was transacted, no scientific papers being presented in view of the full program of the International Astronomical Union session which immediately followed. The president of the Society is Director W. S. Adams of Mount Wilson Observatory.

American Association for the Advancement of Science.—Section D (Astronomy) of the American Association for the Advancement of Science met in New Orleans Dec. 29, 1931, and in Syracuse, N. Y., June

21, 1932. Dr. P. W. Merrill of Mount Wilson Observatory was vice-president for 1932.

The Astronomical Society of the Pacific held its annual meeting for the presentation of scientific papers at Pullman, Washington, in conjunction with the Pacific Division of the American Association for the Advancement of Science, June 15-18, 1932. Abstracts of papers presented appear in *Publications of the Astronomical Society of the Pacific* (vol. 44, page 253), August, 1932. The president of the Society for 1932 was Dr. R. J. Trumpler of Lick Observatory.

OBSERVATORIES

McDonald Observatory.—By bequest of the late W. J. McDonald of Paris, Tex., the University of Texas receives funds for building and maintaining the McDonald Observatory whose principal instrument is to be an 80-inch reflector. The location will probably be in the Davis Mountains of northwestern Texas. It is planned to coordinate the work of the observatory with that of the Yerkes Observatory, which possesses no great reflector, and the observers will be members of the Yerkes staff, under the direction of Dr. Struve, head of that institution. Until the new observatory is built, the Perkins Observatory of Ohio Wesleyan University will place part of the observing time of its new 69-inch reflector at the disposal of an observer of the Yerkes staff.

Mt. St. Katherine Station.—A new station for the study of solar radiation has been established by the Smithsonian Institution, at Mt. St. Katherine in the Sinai desert, east of Suez, Egypt. This will replace the station at Mt. Brukkaros, Southwest Africa, which was closed a year previously, because of unsatisfactory haze and wind conditions. The atmosphere above Mt. St. Katherine seems to be almost free from dust and moisture, the chief hindrances to the measurement of the sun's light and heat.

ECLIPSES

The 1932 Eclipse of the Sun.—The eclipse of the sun of Aug. 31, 1932.

was total along a path which crossed northeastern Canada and New England. Portland, Me., and the tip of Cape Cod were in the path, and Montreal and Boston were just outside. Coming in the mid-afternoon during vacation season, across a region adjacent to great centers of population, it attracted widespread general interest as well as a record number of expeditions from the observatories. Unfortunately, most of the larger and more elaborately equipped expeditions were blanketed by clouds, including the English parties from Greenwich and Cambridge, but Lick Observatory, the University of Michigan, the U. S. Naval Observatory, and several smaller scientific parties obtained good results. Preliminary reports have been published in *Popular Astronomy*, October, 1932.

Observations of Former Eclipses.—Several discussions of the observations of former eclipses have appeared. The most comprehensive of these is Dr. D. H. Menzel's monograph on the solar chromosphere (*Publications of the Lick Observatory*, vol. 17, part 1, 1932), based on the "flash spectra" photographed by Lick Observatory eclipse expeditions in 1898, 1900, 1905, and 1908, under the direction of Dr. W. W. Campbell. Most of the spectra discussed were taken with Dr. Campbell's moving-plate spectrograph in which a very narrow spectrum of the sun's limb is trailed across a photographic plate at right angles to the direction of dispersion so as to form a continuous time-record of the changes in the spectrum as the various levels of the solar atmosphere are successively covered or uncovered by the advancing moon. Dr. Menzel tabulates the measured wave-lengths, intensities, and levels of the chromospheric spectral lines, and the atomic configurations so far as known. Then follow a résumé and critical discussion of the theory of the production of spectral lines by an atmosphere, and a theoretical interpretation of the observations, giving a general picture of the constitution and mechanism of the chromosphere, and its relation to the reversing layer beneath it, with de-

terminations of the mean temperature and the density gradient in the chromosphere, the electron pressure at its base, and the abundance of various elements in it. The monograph is vividly and clearly written, and the plates illustrating it are remarkably fine.

Solar Corona Spectrum.—The spectrum of the solar corona was very successfully observed at Niuafoou in the South Pacific in October, 1930, by Professor S. A. Mitchell of the University of Virginia (*Astrophysical Journal*, vol. 75, p. 1, January, 1932). Two concave diffraction gratings of ten-foot radius of curvature were used, one photographing the spectrum in the visual and ultra-violet regions, the other in the visual and infra-red. Twelve spectral lines attributed to the corona were recorded, including a strong new line in the deep red. The ring-shaped images of the two strongest lines were full of fine details of structure, which were not similar to the details of the chromosphere, nor did the two images resemble each other. Dr. Mitchell discusses the relationships of the known coronal lines, the prominences, the shape of the outer corona, and the association of the latter with the sun-spot period.

Observations of 1925, 1926 and 1929 Eclipses.—In *Publications of the United States Naval Observatory* (vol. 13, appendix 3), are described observations of the total eclipse of January 1925, January 1926, and May 1929, made by parties from the Naval Observatory. The first eclipse was observed from the dirigible *Los Angeles*, off Montauk Point, Long Island; the instruments were several short-focus cameras and a small rapid spectrograph. The sky was clear, and the spectacle was very impressive visually, but the rolling and pitching of the airship blurred the photographs. The eclipses of 1926 and 1929 were observed from Sumatra and the Philippines, respectively. The chief instrument was a camera of seven-and-a-half-inch aperture and 65 foot focal length, and very fine photographs were obtained with it at both places, though some of the Sumatra exposures were spoiled by clouds. The

Philippines plates were compared with photographs of the same eclipse taken by the Sproul Observatory expedition's similar camera, an hour earlier, when the moon's shadow passed over the East Indies, and clear evidences of outward motion of the coronal details during the interval were obtained by Director J. A. Miller of Sproul Observatory, confirming similar results for the eclipses of 1918 and 1923.

SUN-SPOT SPECTRUM

The great vertical solar telescope at Mount Wilson, with its focal length of 150 feet, feeding a spectrograph 75 feet long, is the most powerful existing instrument for studying the spectrum of the sun. With it in 1915-1917 were taken the beautiful plates which make up the Mount Wilson map of the sun-spot spectrum, 34 feet in aggregate length and of microscopic definition. The map shows side by side spectra of regions above the photosphere and above the umbrae and penumbrae of sun-spots. A detailed comparison of 6312 spectral lines, originating in the atoms above the sun-spots, with the same lines as they appear above the photosphere, has been carried out by Charlotte Moore of Princeton University Observatory (*Astrophysical Journal*, vol. 75, pages 222 and 298, April and May, 1932). Miss Moore estimated the relative intensities of these lines, and revised and extended the list of those identified as due to the terrestrial elements, leaving less than 2000 unassigned to elements. A discussion of the intensities of the lines according to the theory of thermal ionization yields estimates of the effective temperature over the spots, the relative numbers of ionized and neutral atoms, and the relative electron pressure. The temperature is 4450° centigrade, somewhat higher than that previously assumed. Finally, the determined constants were used to predict individual intensities of lines in the spot spectrum, and the predictions agreed very gratifyingly with the observations, demonstrating the adequacy of present-day atomic theory to account in a surprisingly detailed

manner for the condition, so remote from that obtained in the laboratory, of matter at the surface of the sun.

PLANETS, COMETS, METEORS

Newly Discovered Planetoids. —

Among the two-hundred-odd minor planets discovered in 1932, two have turned out to be of great interest, for they both came nearer the earth than Eros, holder hitherto of the record for close approaches (see THE AMERICAN YEAR BOOK, 1931, page 619). The first, discovered in March by Delporte of Uccle, Belgium, has an orbit much like that of Eros but more elongated, looking through the orbit of Mars and passing perihelion only 10,000,000 miles outside the earth's orbit. The path of the second, found by Reinmuth of Heidelberg, Germany, in April, loops through the earth's orbit and crosses the orbits of Mars and Venus, its least distance was 6,000,000 miles. The magnitude of each was about twelve, indicating that neither was as large as a mile in diameter. The extreme smallness of these planetoids, and the great perturbations to which they are subjected during their close approaches to the planets, will make it very difficult to pick them up at future approaches to us, but it is to be hoped that Reinmuth's object at least may be recovered, for the perturbations caused by its occasional passages close to Venus, observed over a sufficient interval, would furnish us with an accurate value for the mass of Venus, which so far we have been unable to get, as Venus has no satellite.

Venus.—Attempts to detect in the spectrum of Venus lines due to its atmosphere have previously been unsuccessful. But this year the infrared region, photographed with high dispersion, has yielded to Dr. Adams and Dr. Dunham of Mount Wilson (*Publications of the Astronomical Society of the Pacific*, vol. 44, page 243, August, 1932), three molecular bands, which they suspect to be due to carbon dioxide. The identification has not been confirmed so far in the laboratory. In agreement with St. John and Nicholson (1922), they found no traces of oxygen or water vapor.

Periodic Comets.—Nine periodic comets were due to return to the neighborhood of the earth in 1932. Five of these were detected, and five new ones picked up. None was bright enough to be seen with the naked eye. Among the expected comets that were not found was Tempel's comet of 1866, whose orbit is the same as that of the Leonid (November) meteors. It was hoped that the meteors themselves might give a brilliant display, in succession to their magnificent appearances of 1799, 1833, and 1866. There was no great shower of them in 1899, because of the shifting of their orbit by the perturbations of Jupiter, but a shift back was hoped for, and the hope was strengthened by the appearance of a rather fine shower in 1931. But it was not realized. In spite of strong moonlight many meteors were seen, and if the sky had been dark the number might have equalled that of 1931, but nothing spectacular occurred. Hopes for a great shower next year or even in 1934 are, however, not unreasonable.

Halley's Comet.—The 1910 apparition of Halley's comet is very completely described by Dr. N. T. Bobrovnikoff in *Publications of the Lick Observatory* (vol. 17, part 2, 1932). Seven hundred and nine direct photographs and 77 spectrograms, the majority taken at Lick Observatory, were utilized in the compilation of a detailed history of the comet's behavior from September, 1909, to June, 1911; many of these photographs are reproduced. Various conclusions are drawn regarding the complicated structure of the head and the motion of the knots of material it threw off, the constitution of the nucleus and coma and the two tails, and the nature of the luminosity.

DOUBLE STARS

A very important and long-awaited addition to these catalogs of the fundamental data of observation, upon which depend the statistical studies that form so large a part of modern sidereal astronomy, appeared in 1932. This is the *New General Catalog of Double Stars* (Carnegie Institute of Washington, 1932) by

Dr. R. G. Aitken, director of Lick Observatory and foremost among living masters of double-star astronomy. All pairs of stars close enough together to be considered "double" by modern canons, and discovered before 1927 in the three-quarters of the sky that lie north of declination 30° south, find place in these two volumes. The work is a continuation and supplement to Burnham's general catalog, which appeared in 1906; it was begun by Burnham himself, carried on by Eric Doolittle, director of Flower Observatory, and taken over by Aitken at Doolittle's death in 1920.

The smaller the separation between the components of a double star, the more worthwhile its study is, and with present-day instruments so great a number of really close pairs may be measured that a large part of the doubles formerly observed are of little interest now. Accordingly, more than one-fourth of the stars of Burnham's catalog are omitted from the present one; yet discovery within this century has been so accelerated that the new catalog contains 3525 more stars than the old, or 17,180. Dr. Aitken himself discovered 3101 of them. The number of recent measures has been so great that the separate modern observations are not given, but their yearly weighted means, with a complete bibliography, and for the older pairs only the discovery measure and usually one other are repeated from Burnham's list; yet nearly 1500 pages are covered.

Not the least notable feature of the new catalog is its completeness to a definite limit. In 1899 Dr. Aitken planned to examine for duplicity every star brighter than magnitude 9.0 in the *Bonn Durchmusterungen*, (which covers the sky north of declination 23° south). In collaboration with the late Dr. W. J. Hussey, he completed this survey, and has included its results in this catalog, to the great enhancement of the value of the latter from a statistical standpoint. The completion of a similar survey of the southern sky, now under way at the Union Observatory, Johannesburg, South Africa, is expected

within a few years, and an extensive program of measurement in the same region is in progress at the Lamont-Hussey Observatory at Bloemfontein.

RADIAL VELOCITIES

A General Catalog of Radial Velocities (Publications of the Lick Observatory, vol. 18, 1932) by Dr. J. H. Moore, is in a different field a comparable work to Dr. Aitken's. It gathers together all the measures of stellar velocities in the line of sight, determined with the spectrograph and published before the end of 1931, except the early experimental measures and a few others of evident low precision. There are 6739 stars in the list, including practically all those easily visible to the naked eye, from pole to pole. The velocities of many stars were determined at more than one observatory. By intercomparing results there have been evaluated systematic differences between the measures of several of those observatories which have carried on extensive spectrographic programs (Lick, Yerkes, Mount Wilson, Victoria, and Cape of Good Hope among them), and their velocities have been reduced to a single system based on the Lick measures. In addition to the stars, radial velocities for 133 gaseous nebulae, 90 extra-galactic nebulae, and 18 globular clusters are given.

EXTERNAL GALAXIES

Still another catalog of fundamental data is *A Survey of External Galaxies Brighter than the Thirtieth Magnitude* (Annals of the Observatory of Harvard College, vol. 83, no. 2, 1932) by Director Harlow Shapley and the late Miss Ames, of Harvard Observatory. This is the first uniform and complete determination of the brightness of the extra-galactic nebulae, over the entire sky and above a definite limit of magnitude, that has been made; its importance as a guide to the distribution of these objects is therefore great, in spite of the small number of them included (1249). The galaxies were photographed with short-focus lenses, so that their images appeared starlike among the stars and could be

directly compared with them; the magnitude scale is thus based on the international standards. A study of the distribution revealed confirms Hubble's conclusion that the external galaxies do not in general thin out with increasing distance from us (see THE AMERICAN YEAR BOOK, 1931, page 622); the great irregularity of spacing and the strong clustering tendency, among galaxies within 10,000,000 light-years of us, is very strikingly shown.

PECULIAR STARS

Spectral Type B.—Prominent among the special classes of stars which invite intensive study with the spectrograph are those stars of spectral type B, which show bright emission lines among the dark absorption lines of their spectra. These are at the same time intrinsically very bright and therefore well observable, but peculiar in their characteristics. The general absorption spectrum of the star, on the basis of which it is assigned to a type, indicates very high excitation, but the bright lines are those appropriate to a much lower excitation. These lines are usually edged with absorption on both sides, as though superposed on wider dark lines; sometimes this absorption is only on the violet side of the emission, as in the spectrum of a nova or "temporary star"; sometimes there is also a narrow dark line in the center of the bright one. In some stars both the strength and the wave-length of the bright lines vary. The effect suggests two spectra combined, and it has been suggested that these stars are really double; but this theory encounters great difficulties on detailed application.

The emission B stars have been special objects of study at Mount Wilson, Yerkes, and the University of Michigan Observatories. At Mount Wilson a general survey has been in progress for some years (*Astrophysical Journal*, vol. 61, page 389, June, 1925, and vol. 76, page 156, October, 1932) under the direction of Dr. P. W. Merrill, who has also studied many of these stars in detail. At Yerkes Director Struve and various

collaborators have made detailed investigations (*Astrophysical Journal*, several papers in vol. 73-76, 1931-32, and earlier) and have developed a theory that an emission B star is rotating so rapidly that it is unstable, and that the bright lines are due to a ring of rarefied matter ejected by the centrifugal force. At Michigan study of selected objects of this class, initiated by the late Director R. H. Curtiss, is being carried on by Dr. D. B. McLaughlin, whose theory of the stars of this type that show variation (*Publications of the American Astronomical Society*, vol. 7, page 31, 1931; *Publications of the Observatories of the University of Michigan*, vol. 4, no. 13, 1932) adds to rapid rotation a continuous streaming of material from the star's surface into an extensive gaseous envelope, in analogy to Beals's theory of Wolf-Rayet stars and the most generally accepted ideas of the mechanism of a nova. "What the novae do, perhaps once in a lifetime, in a single violent explosion," says McLaughlin, "the emission B variables are believed to be doing in a relatively quiescent and continuous fashion." Cecilia Payne of Harvard Observatory, extending and applying to these stars an earlier general investigation of Professor Rosseland of Oslo, Norway, interprets their spectra in terms of the physical theory of fluorescence (*Monthly Notices of the Royal Astronomical Society*, vol. 92, page 368, March, 1932). She takes up in detail the atomic transitions responsible for the individual bright lines, both in the B type stars and those of adjacent type O, and finds that radiation from below, under the conditions probably prevailing, might be expected to produce by fluorescence in the star's upper atmosphere exactly the lines observed.

THE EXPANDING UNIVERSE

While evidence is continually stronger for the "red shift" of the wave-lengths of light rays coming to us from the depths of space (the evidence is summarized by Hubble and Humason in *Astrophysical Journal*, vol. 74, page 43, July, 1931), its

theoretical interpretation becomes more and more obscure. In general, cosmologists are inclined to believe that it is a Döppler effect, indicating real recession, but there are several who dissent. If the recession is real, it is not only alarmingly rapid, on a cosmic time-scale, but we continue in doubt as to its significance. On the one hand, Sir Arthur Eddington (*Proceedings of the Royal Society*, series A, vol. 133, page 605, 1931) has derived values of Einstein's "cosmic constant," λ , and of the curvature and rate of expansion of the universe, by quantum mechanics from the physical constants of the hydrogen atom, and the value of the rate of expansion agrees closely with the observed value; he thus ties together the great and small in a startling fashion. On the other hand, Professor Einstein has decided that the cosmic constant may be entirely dispensed with. He has developed (*Proceedings of the Prussian Academy of Sciences*, vol. 12, page 235, 1931) a type of alternately expanding and contracting universe in which λ is zero. And Einstein and de Sitter, in a joint paper in the *Proceedings of the National Academy of Sciences* (vol. 18, page 213, 1932), find it possible to abolish the curvature of space, and still have a distribution and outward motion of nebulae in close accordance with observation. A very illuminating discussion of the present confused state of the problem is found in Professor de Sitter's book, *Kosmos*, noted below.

BOOKS

Kosmos, by William de Sitter (Cambridge, Harvard University Press, 1932). This is in substance the course of Lowell Lectures delivered in Boston in November, 1931, by the director of the Observatory of the University of Leyden Holland. As one of the chief contributors to present-day cosmology, Dr. de Sitter writes with authority; he brings also great skill in the clear exposition of difficult conceptions to this narrative of the development of man's view of

the universe, from the earliest times to the present. No one seriously interested in the current world-view of science should miss this presentation of its rise and its present state.

The Universe Unfolding, by R. H. Baker (Baltimore, Williams and Wilkins, 1932), one of the "Century of Progress" series issued in connection with the Chicago Exposition of 1933. Professor Baker's book covers much of the same ground as Dr. de Sitter's, but in a more elementary fashion, emphasizing description rather than methods and interpretations, brief, comprehensive, and interesting.

Textbook of Practical Astronomy, by J. J. Nassau (New York, McGraw-Hill, 1932). Written for engineering students, this book treats of the fundamental methods of place and time determination, made use of by the astronomer, surveyor, and navigator. Carefully arranged and provided with many illustrative problems.

PERSONAL NOTES

Dr. Otto Struve, assistant director of the Yerkes Observatory of the University of Chicago, has been named director in succession to Dr. E. B. Frost, who retired July 1, 1932. Dr. Struve will be director also of the new McDonald Observatory of the University of Texas, whose activities will be coordinated with those of the Yerkes Observatory.

Dr. J. H. Oort of the Observatory of the University of Leyden, Holland, has been appointed research associate of the Perkins Observatory of Ohio Wesleyan University, for the fall and winter of 1932-33.

The Bruce Medal of the Astronomical Society of the Pacific was awarded to Director J. S. Plaskett of the Astrophysical Observatory of the Dominion of Canada.

The Gold Medal of the Royal Astronomical Society of London was awarded to Director R. G. Aitken of the Lick Observatory.

The Copley Medal of the Royal Society of London was awarded to Dr. G. E. Hale, honorary director of Mount Wilson Observatory.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

DIVISION XVIII

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

AMERICAN ASTRONOMICAL SOCIETY, University Observatory, Princeton, N. J.	MATHEMATICAL ASSN. OF AMERICA, Oberlin, Ohio.
AMERICAN MATHEMATICAL SOCIETY, 501 W. 116th St., New York City.	NATIONAL ACADEMY OF SCIENCES, B and 21st Sts., Washington, D. C. SCIENCE SERVICE, 21st and B Sts., Washington, D. C.

DIVISION XIX

ENGINEERING AND CONSTRUCTION

STRUCTURAL ENGINEERING

BY MILO SMITH KETCHUM

DEAN, COLLEGE OF ENGINEERING, UNIVERSITY OF ILLINOIS

BRIDGES

Parallel and Twisted Cable Bridge.

—The Waldo-Hancock bridge over the Penobscot River near Bucksport, Me., has a main span of 800 ft. and side spans of 350 ft., and is the longest bridge in Maine. This bridge has twisted wire cables, each cable consisting of 37 strands, each $1\frac{3}{8}$ in. in diameter. The ultimate strength of each strand is 216,000 lb. and it was pre-stressed to $\frac{1}{2}$ this amount to take out the non-elastic stretch and to raise the elastic modulus. The diameter of each completed cable is $9\frac{5}{8}$ in. Each $1\frac{3}{8}$ -in. cable strand is composed of 37 galvanized wires of No. 6 gage and six fillers of smaller galvanized wire. The minimum value of the modulus of elasticity after pre-stressing was 26,600,000 lb. per sq. in. as compared with 24,000,000 specified.

Parallel-strand Cable Bridge.—The single strand cable bridge over the Ohio River near Maysville, Ky., has a main span of 1,060 ft. and side spans of 465 ft., with a total length of 1,990 ft. The bridge has a roadway with a 20-ft. road slab and one 4 ft. 8 in.-sidewalk. Each cable is made of 61 pre-stressed twisted strands laid parallel in the cable, giving a final diameter of 13 in. The steel towers are 165 ft. high above the piers which are 60 ft. above the water level. The steel towers were erected in eight days and the wire cables in nine days, using foot bridges.

San Francisco-Oakland Bridge.—

This toll bridge includes approaches, two 2,310-ft. suspension spans with side spans of 1,160 ft., totalling 9,000 ft. in the west channel, a 500-ft. tunnel through Yerba Buena Island, and a 1,400-ft. cantilever span, five 509-ft. fixed-truss spans and fourteen 291-ft. spans across the east channel, aggregating a total length of $7\frac{1}{2}$ miles. Double deck constructions will provide for vehicular and rapid-transit traffic. The total cost will be \$75,000,000. It will be operated by the state as a toll bridge, and conservative estimates provide for amortization in 25 years. Construction is now going ahead with funds furnished by the Reconstruction Finance Corporation.

Golden Gate Bridge.—The legal obstacles that have been blocking progress in this bridge have been removed. Plans are now completed for the record breaking 4,200-ft. suspension span, and work will go forward on the actual construction of the bridge.

Longest Lift Railway Bridge.—The 400-ft. span railway lift bridge recently completed by the M. K. T. Railroad over the Mississippi River at Booneville, Mo., is the longest bridge of this type that has been constructed. The bridge is designed for Cooper's E-70 loading. The trusses are spaced 20 ft. c. to c. giving a roadway of 17 ft. in the clear. The panels of the bridge are 30 ft. long. Silicon steel is used with 24,000 lb.

per sq. in. for all tension members. The bridge can be raised for the entire 30 ft. in 70 seconds.

America's Longest Concrete Arch Bridge.—The George Westinghouse bridge recently constructed over Turtle Creek Valley in East Pittsburgh, Pennsylvania, is a five-span reinforced concrete arch bridge 1,560 ft. long. The main center span is 460 ft. c. to c. of piers, with a rise of 156 ft. On either end of the bridge there are two spans about 195 and 280 ft. long. This bridge has a 42-ft. roadway which is 200 ft. above the valley occupied by a creek, a highway, and a dozen busy railroad tracks. Steel-truss centering was used in all of the arch spans, so planned that the two arches at either end of the bridge would first be completed and then all of the centering assembled to support the 460-ft. span. Centering for each arch was erected from cables. The north rib was poured first, after which the rib centering was lowered and moved 32 ft. under the south rib.

Tunkhannock Viaduct.—The Tunkhannock Viaduct on the Lackawanna Railroad has recently been given a careful examination to find the effect of seventeen years of service. This structure for many years was the largest reinforced concrete bridge in the world. It consists of ten semi-circular 180-ft. spans with open spandrel construction, carrying a solid rock deck for two ballasted tracks. These spans are flanked by a 100-ft. semi-circular abutment span at either end. The total length is 2,375 ft., and the maximum height of the parapet is 200 ft. above Tunkhannock Creek. With the exception of a few surface defects the bridge was found to be in excellent condition. The excellent condition of this structure is due to the great care which was used in making and placing the concrete, and to the attention given to waterproofing the deck of the viaduct. The materials for the concrete were carefully selected, and the concrete was thoroughly mixed with the minimum amount of water that would give plasticity and then thoroughly rolled and tamped.

BUILDINGS

Rockefeller Center.—The Rockefeller Center in New York City, located between 48th and 51st Streets and Fifth and Sixth Avenues, covers three city blocks, each 200 by 920 ft., and has an area of 513,000 sq. ft., or between 12 and 13 acres. The Center includes a dozen buildings, several of which are of the skyscraper class, the largest rising 69 stories and providing more than 2,000,000 sq. ft. and nearly 50 acres of rentable space under one roof. The buildings rise from 400 to 800 ft. above the street and are separated by structures 120 ft. high, assuring permanent light and air. The structural framework of the building was designed by the cantilever method. A wind loading of 30 lb. per sq. ft. was used at the top of the 800 ft. building. This wind load was decreased about $2\frac{1}{2}$ lb. for each 100 ft. until 20 lb. were used between the heights of 100 and 400 ft. No wind load was used below a height of 100 ft. The total weight of materials used in all the buildings amounted to 917,000 tons. Of this the structural steel work weighed 125,000 tons. The RCA Building, 800 ft. high, has 58,000 tons of structural steel or $2\frac{1}{2}$ per cent more than the Empire State building. Many of the structural members are very heavy; the trusses of the sound theatre weighing 69 tons while the proscenium truss weighs 300 tons.

All-steel Office Building.—An all-steel office building has recently been constructed by the Department of Public Works, Richmond, Va. The building is a two-story structure 116 ft. long by 50 ft. wide. The structural steel framework has open-webbed floor beams and a roof of pressed steel deck plates. Steel casement windows extend from the first floor to the bases of the entablature. The inner and outer walls make extensive use of aluminum. Pressed steel plates bolted to the joists serve as the floor and roof decking. The floor fill is 3 in. gypsum poured in place and unreinforced. The walls of the building are from $3\frac{1}{2}$ to 7 in. thick and with the insulating material weigh less than 10 lb. per square foot.

Long Span Steel Building.—The 37-story Gulf Oil Building in Pittsburgh has no columns in the rentable space. The building is 195 by 135 ft. in plan, with a main tower 108 by 108 ft. The columns are spaced in two lanes about 36 ft. apart. Part of the columns in these lanes are spaced more closely together on account of elevator framing.

Aluminum and Steel Frame Building.—The conservatory of the U. S. Botanic Garden in Washington, D. C., will have a framing of steel and aluminum. The building is a hollow rectangle about 284 ft. by 183 ft. in plan. The main columns are of steel while the trusses, cantilevers, and roof framing are of aluminum. The building required 276 tons of steel and 33 tons of aluminum framing.

Masonry Walls.—Tests recently made at the University of Illinois on masonry walls indicate (1) that the compressive strength of a wall panel depends upon the strength of the individual units, and in this investigation was 53 per cent of the strength of the unit, and (2) the ratio between compressive strengths of large walls and wallettes is fairly constant, with an average value of 0.91. From the lateral-strength tests in which the walls were loaded at mid-height as a vertical beam restrained at top and bottom, it was found that flexural strength depended upon adhesion of mortar to unite with failure following a horizontal joint.

Steel Plate Floors.—Steel plate floors of several different designs have recently been used in office buildings and warehouses. The new steel-plate unit known as the "key-stone beam" has recently been constructed by the B. & O. Railroad in one of their warehouses in Pittsburgh, Pa. The units are 2 ft. wide and 7 ft. 7 in. long. The floor is of cellular construction and is made of No. 16 gage sheets. The cells are about 4 in. wide and 6 in. deep and are spaced 6 in. centers. The floor finish is a concrete slab $2\frac{1}{2}$ in. thick reinforced with 21-lb. road mesh to prevent cracks.

HOOVER DAM

The preliminary stage of working

on the Hoover Dam was completed by the blast Nov. 13, 1932, which diverted the Colorado River into the two 50-ft. diversion tunnels on the Arizona side of the river. The two 50-ft. diversion tunnels on the Nevada side of the river will be completed before the floods of 1933. The dam site is now open for the building of the coffer dams and the placing of the concrete. In twenty months since the beginning of the work on construction of the dam twelve months have been gained in the time schedule of operation.

The final plans for the dam were approved by the Colorado River Board Nov. 19, 1932. As approved by the Board, the dam is 732 ft. above the base, has a width of 45 ft. on the crest and 650 ft. on the bottom. The upstream heel of the dam is 110 ft. above the vertical axis through the rear face of the dam, while the downstream toe is 540 ft. below this vertical axis. The dam is designed both as an arch dam and as a gravity dam. The radius of curvature of the water side of the dam at the crest is 500 ft. while the radius of curvature 100 ft. above the base of the dam is 875 ft.

The design of the dam was checked by measurements on a model dam on which tests were made at the University of Colorado. The dam was designed by a method of analysis which may be called "extended method of trial loads," in which the dam is considered to consist of vertical cantilevers and horizontal arches with elastic abutments. The load is divided by trial between the cantilevers and the arches so that each point of intersection of the cantilever and the arch will have the same deflection in the direction of the radius of the arch. This "radial adjustment" is further adjusted for twists and deflections in the direction of the tangents to the center lines of the arches and thus the twisting moments and tangential shearing forces transmitted between adjacent arches or between adjacent cantilevers are taken into account. The tests on the model dam have shown conclusively that arch action will take place in a massive arch-

gravity dam, and the dam will be entirely safe for all conditions of load.

FOUNDATIONS

Long Cylinder Piles.—The Starrett-Lehigh 19-story building recently completed in New York City is carried on long steel cylinder piles. The steel cylinders vary in dimension from 10 to 18 in. with $\frac{3}{8}$ - to $\frac{1}{2}$ -in. shells. Boring through gray river mud disclosed rock 60 ft. below on the east side to 80 ft. below on the west side. The steel piles were driven into the rock, the earth in the pile was excavated, and the space filled with concrete. The piles were capped with reinforced concrete. The safe load on the piles varied from 57.6 tons for a 10 $\frac{3}{4}$ -in. pile to 144.6 tons for the 18-in. outside diameter pile. The length of the piles was limited to 40 diameters.

Steel Breakwaters.—Cellular structures of interlocking steel sheet-piles filled with quarry stone and capped with concrete or stone flags have been used on breakwaters in Great Lakes harbor work. The latest of these steel structures is a long sea wall used in the construction of Lincoln Park extension.

WATERLESS GASHOLDER

A dry-seal waterless gas holder, the first of this type to be built in America, has recently been completed at Syracuse, N. Y. This gas holder, introduced from Germany where it is known as the Klönne holder and in this country as the Stacey-Klönne holder, has a capacity of 6,000,000 cu. ft., is a piston type gas holder, and is the largest of its design in the world. Telescoping gas holders have only recently been the prevalent type, having been supplanted to some degree by waterless piston holders. The largest holder yet built is of the piston type and is located in Chicago. It has a capacity of 20,000,000 cu. ft. and its shell is 283 ft. in diameter and 405 ft. high. The Stacey-Klönne holder has a circular shell and a mechanical rather than a liquid seal. The Syracuse tank is 188 ft. in diameter and 251 ft. high. The gas is

confined beneath a 500-ton piston that imparts pressure to the gas. The seal is made gas tight against the shell by an expansible sheet steel ring to which is attached a packing made up of seven layers of cotton fabric vulcanized with a gas-resisting compound and faced with leather on the lower side where it is in contact with the gas. The shell of the holder is lubricated from grease cups on the packing ring with a special grease to reduce the frictional resistance.

WELDING STRUCTURAL STEEL

In the article on Structural Engineering in THE AMERICAN YEAR BOOK for 1931 were given ten fields of investigation as suggested by the Structural Steel Welding Committee of the American Bureau of Welding. During 1932 work has been carried on in three of these fields: slot welds, welding on flame-cut edges, and welding on other than structural grade steel for buildings. At the annual meeting of the American Welding Society held in New York last April, attention was given to weld ductility. At the same time J. H. Critchett concluded that while ductility is an important element, extreme ductility is not necessary for structural welding. Professor H. F. Moore of the University of Illinois read a paper on a new and necessary characteristic of some metals which he termed "crackless plasticity," or the ability under repeated stress to resist spreading of cracks which may originate at minute defects.

Excellent progress is being made to determine the properties of welds and to obtain the necessary data for the adoption of general structural welding. However, the use of structural welding will require a very extensive practical use of the method before it can be generally adopted as a substitute in all cases for riveted construction.

EARTHQUAKE RESISTANT CONSTRUCTION

As a result of a study by California engineers and also of tests made on the shaking table at Stanford University two principles appear to be well established. These are unity of

construction and rigidity of structure. Unity of construction means that the structure should be a coherent unit in which every part is well bonded together and equally competent to take the stresses to which the structure may be submitted. The requirement of rigidity demands that the structure, when struck by a shock, shall deflect very slightly and return very quickly. The maximum stresses develop in a building when it swings in unison with the vibrations of the ground. To avoid resonance, we should design so that the period of swing of the building shall be either less or greater than the expectable period of vibration of the ground. For buildings up to ten or twelve stories the proper degree of rigidity can be obtained by means of reinforced concrete and steel construction. It may be necessary, in buildings higher than this, to introduce a flexible support in the basement columns, upon which the structure shall swing with a long slow motion.

LESSON FROM THE PUERTO RICO HURRICANE

The Puerto Rico hurricane on Sept. 26 was very destructive. The wind velocity was estimated to be between 130 and 140 miles per hour and destroyed reinforced concrete buildings, steel-framed structures, transmission-line towers, pier sheds, chimneys and coal-handling gantry cranes, and blew railroad freight cars off the tracks. If the wind can penetrate into buildings through openings or broken transoms and windows facing the direction of the hurricane, the loading produced by the wind may be as high as three times the velocity pressure. The following conclusions may be drawn from this storm. It is recommended that wind loadings be raised to 75 lb. per sq. ft. Reinforced concrete buildings when well designed and constructed to appear to be hurricane proof. Windbracing connections for steel-framed structures should be designed to make the structure rigid. Outside glass windows should have wire glass. Roof trusses must be securely anchored to the walls of the buildings.

ENGINEERING RESEARCH

Portland Cement.—Two important and difficult problems in connection with the design of Hoover Dam are the heat generation in a large mass of concrete due to hydration of the cement as the mixture hardens and the volumetric changes occurring in mass concrete due to temperature variations and other causes. These problems have required two special provisions in the design of the dam: circumferential contraction joints and an elaborate cooling system that will lower the temperature of the concrete to normal and subnormal values before grouting at construction joints. It has also necessitated an elaborate research to determine the best type of Portland cement for use in construction of the dam, the maximum temperature that will occur during the settling of the cement and many other problems. Many problems on the properties of concrete have been studied in two large laboratories in Denver. Investigations are also being carried on in cooperation with the University of California.

Tests on Reinforced Concrete Columns.—Tests are being made on reinforced concrete columns in the laboratories of Lehigh University and the University of Illinois. While the investigation has practically been completed, the final conclusions have not been published. Among the important results obtained it may be noted that the efficiency of spiral reinforcement was found to be from $1\frac{1}{2}$ to 2 times that of the vertical reinforcement. Another notable conclusion is that no difference was found in the ultimate strength of columns held under sustained loading for a year and companion columns not loaded. However, the stress in the steel increased appreciably in all columns under sustained working loads, values of n increasing from 4 to 6 times during a year, with the major part of this increase occurring at the end of five months. These investigations of concrete columns will contribute to the certainty in the design of columns of this type.

Cast-iron Pipes for Columns and Column Cores.—Recent tests have

been made in which cast-iron pipes made by the centrifugal process have been used as columns or as column cores for reinforced concrete columns. All the pipes were 4.2 in. inside diameter and 0.3 in. thick, with a sectional area of 4.3 sq. in. Four groups of columns were tested, including cast-iron pipe alone, cast-iron pipe filled with concrete, cast-iron pipe as a core, and reinforced concrete spiral columns in which the spirals were 7 in. in diameter and a 7-in. spiral reinforced concrete column with the same vertical steel reinforcement as in the columns with cast-iron cores. The average ultimate load of the reinforced concrete columns was 304,500 lb., while the average ultimate load of the reinforced concrete column with a cast-iron core was 369,000 lb.

Tests of Light I Beams.—Rolled I beams of standard section have been used extensively in steel structures and their strength and properties have been determined by tests as well as by actual use. The strength of light I beams, known as J. & L. Junior Beams, manufactured by Jones & Laughlin Steel Corporation, have recently been tested at the University of Illinois. The results of these tests are recorded in *Bulletin No. 241* of the Engineering Experiment Station of the University of Illinois. Among the conclusions drawn as a result of this investigation are the following:

(1) With the upper flange restrained against sidewise deflection, the ratio of the ultimate strength of the beam to the yield point strength of the material is greater for the J. & L. Junior beams than for the standard beams. This is probably due to the J. & L. Junior beams having a more homogeneous material, due to more thorough rolling, than the standard beams.

(2) The compressive or buckling strength of the web of J. & L. Junior beams with stiffeners at supports and at load points is equal to the strength of a short section of the beam tested as a column fixed by the upper and lower flanges.

(3) Bearing failures of J. & L. Junior beams are generally due to a

buckling of the web rather than to the compressive failure of the material at the junction of the web and flange.

(4) The J. & L. Junior beams acted as would be expected from the tests of standard beams, except that the buckling strength of thin webs in beams has been greatly underestimated. The tests also showed that special attention should be given to the lateral support of the upper flanges of J. & L. Junior beams.

Reinforced Brickwork.—Reinforced brickwork has been used to a limited extent for many years. Reinforced brick grain bins were used before the use of reinforced concrete grain bins. Recent reinforced brickwork in this country includes cylindrical storage bins, trestle piers, a tank enclosure, a small bridge, columns, girders, joists, floor slabs, lintels, and building walls. Recent tests of reinforced brickwork show (1) high breaking loads as compared with design loads, (2) slight deflection under heavy loads and (3) frequent full recovery of deflection after removal of the load.

Earth-pressure Testing Machine.—A large earth-pressure testing machine has recently been completed at the Massachusetts Institute of Technology for use in a cooperative investigation with the New England Power Construction Company. This bin is 14 ft. long and 14 ft. wide. It is provided with a model retaining wall 7 ft. high. The pressure-measuring surface or retaining wall is so adjusted that the movement forward under load is very slight. In designing this testing machine it was assumed that where the bin had a length twice the height of the retaining wall, there would be no effect of side friction. The results of the tests have been checked by means of Goldbeck pressure cells. A statement has been made that the Goldbeck pressure cells give unreliable results.

Reinforced Concrete Arch Investigation.—A very comprehensive investigation of reinforced three-span arches is now being carried on by Professor W. M. Wilson at the University of Illinois. Each specimen consists of three spans each 27 ft. long, built

and tested in the Materials Testing Laboratory of the University. The types of span to be tested are as follows: (1) Three three-span structures, each span consisting of a rib without deck. The three structures have ribs that are similar but piers that differ in height, the pier heights for the three being 20, 15, and 10 ft. (2) Twelve three-span structures, each span consisting of a rib, spandrel columns, and deck. Six structures have low decks that are integral with the rib at the crown and six have high decks a considerable distance above the rib at the crown. Of each group of six structures, three have expansion joints over the piers only and three have expansion joints over the piers and also near the one-third points on the spans. For each group of three structures, all have similar ribs and decks but have piers that differ in height, the pier heights for the three structures of each group being 20, 15, and 10 ft.

In this investigation it is planned to determine (a) the agreement between measured and computed values of the reactions at the springings of the various spans, the computed values being by the elastic theory taking into account the deformation of the piers; (b) the elastic constants for a single span; (c) the influence ordinates for fixed-ended reactions for single span; (d) influence ordinates for reactions at the springings of all spans of the three-span structure; (e) the magnitude and position of the thrust due to the design load; (f) the influence of the deck upon the load-carrying capacity of the structure; (g) the influence of intermediate expansion joints in the deck upon the strengthening effect of the deck. The tests of the three three-span structures without decks have been completed and tests are being made of the three-span structures with decks. This investigation is carried on by the University of Illinois in cooperation with the U. S. Bureau of Public Roads, the American Society

of Civil Engineers and the Engineering Foundation.

Brittleness of Galvanized Structural Steel.—An investigation of the embrittlement of hot galvanized structural steel at Battelle Institute, Columbus, O., has shown that embrittlement occurs at points of cold working and in specimens with stress concentration as at notches and sharp bends. Open-hearth steel should be used for galvanizing if any cold working without annealing is to precede galvanizing. For use in cold climates galvanized steel should be drilled.

Fatigue of Zinc-coated Steel.—Fatigue tests made at the U. S. Bureau of Standards of specimens that had hot galvanized coatings, showed that galvanizing reduced the endurance limit from that of polished uncoated steel by as much as 42½ per cent. Quenched and tempered steels were affected more adversely than annealed steels.

New Rivet-bolts for Structural Steel.—The new rivet-bolt for use in place of rivets in structural steel connections has recently appeared on the market. A rivet-bolt is commercially available in diameter sizes from ¾ to 1 in., has a standard rivet head, is threaded on the opposite ends with a special screw head, made self-locking by means of tapered faces at the root that engage similar tapered faces at the crest of the nut thread and a shank into which ribs or fins are cold-rolled parallel to the axis of the bolt. The diameter of the bolt itself is made 1/16 in. less than that of the hole into which it is to be driven while the diameter of the ribbed section is made 1/32 in. larger than the hold. The bolts are driven with a 5- or 7-lb. sledge and the nuts are tightened with a wrench. From 15 specimens tested at Columbia University it appeared that the bolted lap joints were stiffer than the hot-driven-rivet joints. One advantage of the bolts is that they may be made of manganese or alloy steel.

MECHANICAL ENGINEERING

MECHANICAL ENGINEERING

By CALVIN W. RICE

SECRETARY, AMERICAN SOCIETY OF MECHANICAL ENGINEERING
and

LEON CAMMEN

ASSOCIATE EDITOR, *Mechanical Engineering*

INTRODUCTION

The general trend in engineering in 1932, as in 1931, was a confusing one because there were two tendencies which in part conflicted and in part superimposed upon each other. On the one hand the managements of some of the plants have come to the conclusion that, while the market for their own product has more or less disappeared, there were possibilities in either directions, either by way of making entirely new products, or by way of modifying their previous product. This naturally required research and development work and at times led to the purchase of new machinery. On the other hand some plants have decided that the trouble is not with the market for their product but with their ways of making the product; hence an effort was made either to produce the product at a lower cost, possibly with some sacrifice in quality or appearance, or introduce such modifications as would make the product more valuable; or adopt new methods of production which would cut the price of the product and thus open new markets. This also would lead to development and research work. Finally, there were concerns, only too numerous for the good of the industries, which simply decided that there is no business to be had no matter what they make and how, and which have more or less shut down on production in the hope that when the revival of business comes they can start again doing business. This kind of concern has largely discontinued any research or development work if they ever did any; and has shut down on the purchase of new equipment. Whether an industry can temporarily cease and later resume is, of course, a question which events will answer in due time and place.

As a result of all of these tendencies we are witnessing a practically complete shut-down of mills in some cases, and what looks like feverish activity in other cases. There is also a feeling among many managements that when business begins, competition both in price and quality will be very severe and only plants fully prepared to meet the new conditions can survive. It is with this in mind that a very large amount of research work is being carried on, not with a view to immediate application, but for the purpose of making use of it as and when economic conditions improve. In the meantime interchange of branches of engineering is more in evidence than ever before. Electric controls such as photo-electric tubes, thyrotrons, selsyns, glow-grid lamps, sonic controls, etc., are being increasingly employed in mechanical engineering, primarily for the purpose of replacing the human element in control of manufacture by automatic means. There is also a considerable tendency to extend the application of recording and counting devices in connection with machine tools and other production equipment. Developments in mechanical engineering are more than ever dependent of the availability of new materials or the use of old materials in new ways. New cutting tools, methods of depositing hard facings on soft materials, use of rubber blocks to absorb vibration, improvements in carbide type cutting metals, etc., are rapidly reorganizing mechanical engineering by permitting stresses and performances of previously unheard of magnitudes. Among the remarkable developments of the last couple of years may be particularly mentioned the use of the oxyacetylene torch for cutting metals which only a little while ago was crude and uncertain but can be used today with an

astounding efficiency and precision. Another development to which particular attention may be called is that of precision forging which has been carried to such a stage today that in many cases the article can be taken from the forging machine and directly finished by grinding without any preliminary machining. While, however, these improvements in forging have been going on in one direction, in another direction a powerful competitor to forging arose in modern casting. It is only a short while ago that all castings were considered brittle and unreliable and to be avoided where vibration or large stresses were apt to be encountered. Today we find that automobile crank shafts are actually being cast, a field in which only a short while ago forging absolutely predominated.*

AERONAUTICS

Safety Fuel.—The most important thing that is happening in the aeronautical field is neither spectacular nor definite enough to be expressed in a few single sentences. It is a series of improvements and particularly the research which here and there is increasing the speed of the planes, reducing their obsolescence and raising the factor of safety. If individual developments are to be mentioned, the creation of what is known as the safety fuel might be stated first. This is a gasoline with such a high flash point that it is considered to be perfectly safe to extinguish a match by dipping it into this fuel. It is the danger of ignition of gasoline fumes by such hot parts of the engine as the exhaust pipes that made fires on planes, particularly in the case of a crash, a source of danger and horror and incidentally promoted the introduction of the Diesel engine. With the new fuel the so-called gasoline engine is as safe as the Diesel engine with all the superior advantages of the former in the way of lighter weight and higher stage of development.

*In the preparation of this part of THE AMERICAN YEAR BOOK use has been made of the progress reports of the various Divisions of the American Society of Mechanical Engineers for the year 1932.

Improvements in air-cooled engines have been generally by means of faster supercharges, higher compression ratios, and improved cooling characteristics. Material improvements have been made also in the way of better lubrication.

Fog Landing System.—The problem of fog, especially in connection with landing fields, has not yet been solved but the U. S. Army Air Corps has developed an interesting fog landing system which has been successfully tested at the Wright Field and is now being installed in selected air corps stations.

Naval Aviation.—In the field of Naval Aviation the most important step has been the commissioning of the U. S. S. *Akron*, the first fleet airship and aerial airplane carrier equipped to carry especially designed high performance fighting airplanes, with provision for their starting, alighting and housing while the airship is in flight. The Navy also started experimental work in connection with fuel gas for air ships. Among other things the Navy undertook a study of so-called "plumbing" troubles which means leaks, breakage of piping, etc., especially in the fuel system. The presence of water in fuels is also under investigation.

SIDEWHEEL DRIVE PLANES

At the end of the year some information became available of the sidewheel drive plane developed by Adolf Rohrbach, a well-known German plane builder. The propeller is here replaced by a feathering plane changing its pitch in the course of each revolution. The basic idea is not new, but no one in the past has succeeded in the many difficult problems of design. If successful, this plane is apt to revolutionize the entire structure of modern aviation, as such a plane could be handled like an automobile, could stop in the air and even reverse its direction of flight.

MACHINE SHOP PRACTICE

Welding.—The year has been characterized more by a consolidation of the progress already gained than by the introduction of any radically new

developments. One of the most significant developments has been in the remarkable expansion of application of welding. One fairly large machine tool manufacturing concern has substituted welded structures for castings whenever possible and the results have been surprising to a degree in strength, saving in weight, efficiency and grace. The evidence is not lacking that, despite the conservative attitude of some designing engineers, the day is not far distant when welded structures for major units will be standard practice.

Automatic Machine Loading.—

Without doubt, the most outstanding achievement in the attack on the idle or non-cutting time in the machine-tool cycle is the provision of automatic loading devices for individual machines or groups. While to date the majority of applications have been in connection with lathes and automatic grinding machines generally, there is not the slightest doubt that this type of equipment, which has been described in detail in the technical press during the year, will find many uses as an auxiliary to all types of machine tools that are used on high-production work. When it is realized that the average machine tool is actually cutting metal only about 30 per cent of the total working hours, it will be appreciated how important this contribution is to the progress of the art.

Automatic sizing, or in other words, the provision of automatic compensation for the wear of the grinding wheel, continues to gain favor, and a number of interesting installations have been made in plants handling a mass-production program.

New Milling Machine Type.—In the milling-machine field there has been released a new type of horizontal boring, drilling, and milling machine, which may be arranged with compound table. In general review, it may be said that there have been many contributions to the attack on idle or non-cutting time in the form of duplication of controls at the front and rear of machines, as well as the provision of more automatic features,

Spindle Speeds.—There has been a general increase in the range of spindle speeds. One concern in particular now makes a practice of providing 32 spindle speeds ranging from 25 to 1800 rpm, and feeds from $\frac{1}{2}$ to 62 in. per min. This machine will aid in more efficient milling, as it adapts the machine to the latest cutting material, either tungsten or tantalum carbide, as well as being adapted to high-speed or carbon tools.

Cemented Carbide.—The new composition of cemented carbide for cutting steel permits increases in cutting speed as great as those that can be obtained with cemented tungsten carbide on cast iron and non-ferrous materials. Due to its new characteristics, among which is the elimination of practically all cratering action, or cupping out of the top surface of the tool, caused by the pressure and abrasion of the chip coming off the work, it is now possible to do many jobs formerly impossible with hard carbide tools, such as light finishing cuts on soft steel, where the cratering action was so destructive. The chips seem to slide off the surface of the tool easier, there is less tearing action, and a much improved finish is left on the work. This is an entirely new development in hard-metal composition, being a mixture of several carbides held together with a binder, and embodying a rare metal carbide not previously used in this class of tools. It is manufactured by coating the cutting particles with a softer material which acts as a binder, mixing thoroughly to obtain a homogeneous and uniform mass, pressing together under enormous hydraulic pressure in a mold, and finally sintering at high temperature in an inert atmosphere in an electric furnace. This cementing process is similar to that employed in the manufacture of cemented tungsten carbide, as developed by Krupp, and produces a remarkably uniform and homogeneous product, free from porosity.

The steam drop hammer has for years been considered as the least efficient tool in the industry. Of late, however, quite important improve-

ments have been made. After several years of scientific research and development, one company has put on the market a hammer which will produce more forgings with less steam, and will produce more forgings to any specified tolerance without down time for adjustment, than any steam hammer which preceded it. This has been accomplished by developing a balanced design, based on laboratory results. The correct relation between ram weight, ram velocity, and anvil weight has been determined, so that a maximum of applied energy is absorbed by the forging, thus diminishing the number of blows necessary. With the anvil weight determined, the other structural details are designed to give the utmost in rigidity and wear resistance. The frame-to-anvil connections are a combination of tongue and groove, step joint, and overlapping, and are rigid in all directions, with provision for maintaining the essential perfection of fit.

IRON AND STEEL

Furnace. "Slow Blowing." — Except for a short period when it looked as if there would be a substantial increase in the volume of production of iron and steel as a result of better demand on the part of railroads and motor vehicle builders, business was very slow in these key industries. For the first time in ten years a concession was made by steel makers in the price of rails, but even this did not bring out any substantial amount of orders. Nevertheless, there was progress in the technical field, some of it, strangely enough, resulting from the depression itself. Thus in pig iron manufacture the so-called "slow blowing" has been successfully tried out. Essentially this means blowing the blast furnace at a rate somewhere below the point of maximum production. Surprisingly good results followed. Flue-dust losses were substantially reduced; coke consumption was decreased, and the quality of the iron became more regular and better. Associated with slow blowing has been intermittent operation. Here the results, while not so productive of economies as slow blowing, furnished some

surprising upsets to formerly accepted theories. Short periods of banking of blast furnaces have been tried many times in the past but with unsatisfactory results. Now, instead of a complete shut-down of the furnace a slight blowing is kept up, called by blast furnace men by a new word "fanning." This "fanning" was something that operators were inclined to avoid. It is, however, extensively and successfully used now.

New Use of Blast Furnace Gas.—

During the past several years there has been a growing interest in the more profitable utilization of blast-furnace gas. Following the pioneer installations at the Hamilton, Ont., plants of the Steel Company of Canada, a number of American concerns have successfully applied blast-furnace gas to the heating of soaking pits and heating furnaces, and in some cases, mixed with coke-oven gas, to open-hearth practice. The year 1932 has seen only a little extension in this practice, but at one more plant at least blast-furnace gas has been used for heating by-product coke ovens. These uses of blast-furnace gas are not new, but they are leading to some interesting developments in the way of equipment for the more economical and thorough cleaning of blast-furnace gas and its conservation by improving the efficiency of hot-blast stoves. Up until this year the only proven dependable method of thoroughly cleaning blast-furnace gas has been by means of Theisen washers or mechanical scrubbers of the disintegrator type. Mechanical scrubbers have had several objectionable features, chief among which may be mentioned the high cost of operation and the inability to dry the gas. The use of disintegrators has also brought about an additional hazard in handling gas. A new type of dust catcher utilizing a "zeppelin" or streamline principle for more equal distribution of gas and prevention of turbulence has been designed and built; double-compartment bosh and stack plates, applying the advantages of double-compartment tuyères to the cooling of furnace walls, have been brought on the market.

Open-hearth Plant Research.—In the open-hearth plant field there has been a material curtailment of research. However, several furnaces have been equipped for their automatic reversal from temperature difference, and a few installations of combustion or draft control have been made. One of the larger companies has been experimenting for a number of months with a method of firing the furnace through the roof, the flame being directed generally downward and toward the backwall. This experiment is being conducted with considerable secrecy, but it is understood that the time of heat is materially shortened with some fuel, and with considerable metal savings as a result of using the method.

Rolling Mill Installation.—There has been curtailment of development also in the rolling mill art. Several large mills, however, have been installed on orders dating back more than a year. Notable among the mills completed during the year are the wide-flange beam mill at the Illinois Steel Company, the continuous plate and sheet strip mill at the inland Steel Company, and the continuous sheet strip mill at the Otis Steel Company. These installations in the aggregate have an additional annual producing capacity of approximately 1,750,000 tons of finished and semi-finished products. The installation of these mills is an interesting comment on the attitude of the managements of three of the largest steel companies on production statistics varying from 14-22 per cent of existing capacity.

Hand Mill Development.—Further development in the modernization of hand-operated sheet and tin mills has continued during the year. Many hand mills have been equipped with automatic mechanical feeders and catchers in arrangements known as the "combination system" or "combination method." These have resulted in increasing the production of the old type of tin and sheet mills to approximately one and one-half and three times their respective original outputs, with savings in labor up to about \$5 per ton, together with

better quality of product, a higher percentage of prime material, lower scrap loss, and the elimination of hard manual labor.

Electrically Welded Pressure-Pipe.

—In this field the most interesting developments have been attempts to enter the casing field, illustrative of the high degree of perfection which the process of electric pipe welding has attained. One of the great advantages of electric weld pressure-pipe as against seamless pipe lines in lower production costs for sizes above 3½ inches outside diameter and the ability to produce larger sizes and longer lengths. It is said that it is possible with the resistance electric welded methods to produce more than ten miles of pipe in a 24-hour day with only one welder per shift. Because of recent changes in the Boiler Code welding can now also be applied to the manufacture of boiler drums.

STEAM POWER ENGINEERING

High Pressures.—The tendency towards the use of high pressures with the necessary reheat does not seem to be as strong as before, and the present tendency is more towards the use of pressures as high as can be practically used without reheat. One plant is now in operation, using a pressure of 700 pounds and a temperature of 850 deg. F. without reheat and still higher pressures and temperatures without reheat are in sight. Developments in the use of higher pressures and temperatures have stimulated the idea of "rehabilitation" of old plans by the superimposition of a high pressure boiler and turbine on existing equipment. In industries using a large amount of process steam there is an increasing tendency to install higher pressure boilers and use turbines as mere reducing valves, obtaining power at unusually low costs. No discussion of high pressures would be complete today without reference to the critical pressure or Benson boiler. One such unit has been installed on the German steamer *Uckermark*.

Boilers, boiler furnaces and fuel burning have not shown great improvement in the past year but the

matter of fly-ash and cinder elimination where pulverized fuel is used attracted a good deal of attention. The electric precipitator seems still to lead in general effectiveness, but wet scrubbers have been effectively used.

Pulverized-fuel Ash for Brick.—Sponsored research at Purdue University has apparently borne fruit in the development of a fairly simple process for the manufacture of building brick from pulverized-fuel ash. This scheme contemplates the setting up of equipment to manufacture the brick at the power station where the ash is produced.

Turbo-generator Design.—The tendency in large turbo-generator design is distinctly toward single-shaft machines. The largest of these so far installed are two 165,000-kw tandem machines in the Hudson Avenue Station of the Brooklyn Edison Company. The order has been placed for a similar unit for the Richmond Station of the Philadelphia Electric Company. No increase in steam pressure over that of the previously existing equipment was made in either case. Motor-operated turning gear to keep the machines slowly rotating when out of service for comparatively short periods are now almost invariably used on the larger units. The rotation serves to eliminate inequalities of temperature in the turbine rotor and thereby permit more rapid starting. On the larger units auxiliary high-pressure oil systems are being provided to float the rotating element before starting from rest and thus avoid damage to the bearings.

RAILROAD MECHANICAL ENGINEERING

Multi-pressure Boiler Locomotives.—Big changes are unquestionably coming in the railroad field, some by way of improvement of existing equipment and others by radical reconstruction, preceded probably by a ruthless tearing down. In the former field attention may be called to the so-called multi-pressure boiler locomotives. These locomotives use steam at a pressure of 850 lb. per sq. in. in the high-pressure cylinder, whereas the best of our conventional form of loco-

motives use steam at 275 lb, so there is an increase in steam pressure of over three times. There are two superheaters, one for a steam pressure of 850 lbs and one for 250 lbs; there are two boiler-feed pumps, one for feeding to the low-pressure boiler and one from the low-pressure into the high-pressure boiler. There is the ordinary exhaust-steam feedwater heater for heating the water that is drawn from the tender before it goes into the first boiler. A departure of more than ordinary interest has been the application of Lentz and Caprotti poppet valves, fitted with both oscillating and rotary valve gear, to several hundred locomotives abroad and a number of test applications in this country. There appears to be a realization that the losses due to mechanical friction are much less in the case of poppet valves than in that of the piston type. In like manner, less energy is absorbed in actuating the valves, so that not only a theoretical but a practical gain of some degree is recorded.

Passenger Car Improvements.—There has been no lack of attempts to introduce new or improved types of rolling stock. The Pennsylvania Railroad placed in service on the Long Island Railroad a double-decker car that will seat 44 or more persons than the suburban passenger coach now in use. Another railroad is experimenting with a pullman so arranged that the occupant on the top berth can undress and dress in comfort. Air conditioning of railroad cars is still in the formative stage though tested equipment is available. In this country a pneumatically tired coach has been placed on railroad service. A somewhat different design was adopted by the Austrian State Railroads. In Germany the oil-electric road coach of advanced streamline design has shown remarkable speeds in a run between Berlin and Hamburg.

Freight Train Equipment.—During the year test reports were issued regarding 100-car freight-train operation, with and without roller bearings, on a comparative basis, such equipment having been tested under the auspices of the Timken Roller Bearing Company. Ten 70-ton hopper cars,

with bodies made from aluminum, were placed in service, with a saving in weight of 21,200 lbs., as compared to the use of steel as ordinarily employed.

Tank cars handling dry granular commodities with practically the same convenience and efficiency that standard tank cars now handle liquids were perfected after nearly two years of research and road tests by the General American Tank Car Corporation and are designed for bulk movement of such dry materials as cement, lime, silica sands, sulphur, fertilizers, soda ash, pottery clays, and fuller's earth.

Car Refrigeration.—A car is being designed by the Standard Steel C. Company for the quick freezing of perishable foods. This car is not unlike the all-steel baggage car, inasmuch as it has a central door opening, with a partition beyond the center door which forms a small compartment for refrigerating machinery operated by electric motors. The large compartment is equipped with two 8-stage frosters, the combined capacity being equal to 40,000 tons of frosted foods every 24 hours. This car is unique in the sense that it is planned to send it to various sections of the country during the growing season and have it collaborate with packing plants, so that the food is first prepared by the packing plants and is then turned over to this car, where it is packaged and quick-frozen. These packages are then put into cartons, sealed, and placed in refrigerator cars for shipment to warehouses and final distribution. In other words, it is a manufacturing plant on wheels, from which emanates considerable tonnage during a year's service.

Freight Sea-train.—A development which may have far reaching consequences is represented by the so-called sea-train, a steam-propelled vessel so arranged that it can conveniently carry 100 freight cars. Already some goods are beginning to move by sea-train which never moved before on the rails.

OIL AND GAS POWER

Ignitibility.—During the past year the spotlight in the oil-engine situa-

tion shifted to the fuel. The modern high-speed engines were found to be rather particular about their fuel and showed their dislike to certain fuels by knocking. This fact was made the subject of some searching investigations by several British and American oil companies. It was discovered that the suitability of a Diesel oil is largely determined by a previously unknown fuel characteristic, the ignitibility. The oil which ignites readily after a short ignition lag is the desirable fuel for Diesel engines. The customary lists of Diesel fuel-oil specifications never contained such an item as ignitibility; therefore they are now considered inadequate. The A. S. M. E. Committee for Diesel Fuel-Oil Specifications, in cooperation with S. A. E. and A. S. T. M. committees, is giving special attention to this phase of the fuel problem. Projected research is destined to find the best ways to determine the ignitibility of an oil and to express it in comparable units. The insight gained by recent investigations already has enabled several oil companies to bring distinctly superior Diesel oils on the market. Their high price prevents their more general use as yet, but further developments are impending.

Safety Fuel Research.—In the marine field, the outstanding installations of the year are found in the German Naval vessel *Bromse*, the British passenger liner *Georgic* and the Italian passenger liner *Neptunia*, each representing a type of construction of its own. In the yacht field the activity naturally has been small although research continued. Here quite an interesting situation arose in the course of the year. Several disastrous fires on gasoline-driven yachts seemed to foretell a complete replacement of gasoline engines by heavy oil engines in the near future, either by way of the Diesel and semi-Diesel type or by way of adapting the gasoline engine cycle to the combustion of fuel oils. A very recent development of a safety fuel which means a gasoline possessing a very high flash point may have led to the retainment of the conventional gasoline engine with possibly some kind of carburetor attachment

to make it possible to burn the new fuel.

Diesel Locomotives.—It is exceptionally unfortunate that just when railroads had convinced themselves that the Diesel locomotive is the only logical switching locomotive, they do not have the money to buy them. As an exception 37 Diesel locomotives have been installed for operation in the freight yards on the west side of New York City by the New York Central. In spite of lack of orders, several engine builders are at work developing locomotives, and some of them are known to be successful, technically speaking.

AIR CONDITIONING

Buildings.—Air conditioning made outstanding progress in 1932 and shows indications of possibly becoming one of the industrial giants of the coming years. It has been applied in individual factories for a number of years. It has been sporadically introduced into such outstanding buildings as the New York Stock Exchange and the Houses of Congress where the matter of cost was secondary to that of convenience and comfort. It is only comparatively lately, however, that air conditioning has been developed to the point where it is substantially automatic and can be installed in very small as well as very large units. Its application to residence purposes is just beginning to appear but there are good indications of a future healthy growth. The introduction of air conditioning in hotels and particularly hospitals is a matter of time only and in the latter case will be accompanied probably by some form of air preheating for purposes of its absolute sterilization. Incidentally there is an enormous gap between the pre-Lister or pre-Simmelweiss days, when antisepsis was unknown, to the time when an operation will be performed in a perfectly sterile atmosphere and the patient, even on the hottest days will be recovering in a comfortable room with washed air maintained at the ideal limits of temperature and humidity. It was only through the development of small units and method of their production

at a reasonable cost that the present air conditioning and such of its applications of the future as may be promptly expected have become possible.

Railroads.—The introduction of air conditioning on railroads is now a matter of history. Starting with the dining cars on the Baltimore and Ohio it has now spread throughout the country, and air conditioned complete through trains are now available. Hitherto it has been limited to Pullmans but the matter of installing it on day coaches is already under serious consideration.

In the Tropics.—Still greater prospects for air conditioning are opening with its application to residence maintenance in tropical countries. It has been observed that even a very high temperature during the day is not essentially enervating providing the nights are cool and it is primarily the fierce heat of the nights in India Straits Settlements, and Central Tropical America that affects profoundly the health of all those coming to reside there from countries in the moderate zone. Air conditioning of dwellings would make life in the tropics entirely bearable for Englishmen, Frenchmen and Americans and might profoundly affect the metabolism of even the native population.

PETROLEUM MECHANICAL ENGINEERING

Characteristics of New Stills.—

Flexibility, operating economy, and avoidance of patent difficulties appear to be the guiding hands in the development and improvement of cracking plant technology, irrespective of the value and application of cracking to the solution of the problem of maximum yield of gasoline possessing the highest anti-knock properties demanded by the automotive engine. The increases in both yield and anti-knock quality in cracked gasoline are attributable to a large number of new developments of the different methods of application of older ideas. A multiple type of cracking furnace, a viscosity-breaker furnace employed to produce clean cracking stock for the main furnace, and transmitting the greater part of the heat energy in

radiant rather than the convection bank, are some of the characteristics of new stills.

Fuel and Lubrication Research.—Apart from that and notwithstanding the confused economic condition, there has been vigorous research due in part to the desire to reduce the cost of production but also because of the insistent demand for performance to more rigid specifications on the part of the purchasing public. Everybody knows, of course, that today the motor vehicle industry constitutes the larger source of purchasing power of products of petroleum refining. The increase in pressure ratios in modern automobile engines created a demand for higher octane gasoline while the higher speeds at which automobiles are run made it necessary to use better lubricants. The petroleum industry had to satisfy these demands without raising prices and at times in the face of declining market quotations. In the lubricating oil field for example one company produced a hydrogenated oil claimed to possess superior performance ability, while another company developed in the laboratory a non-sludging, synthetic, motor oil too costly as yet, however, for sale to the public except for special purposes.

Plant Equipment.—There has been material progress in equipment and particularly in the use of instruments for measuring, controlling, recording and providing safety in plant operation. As regards equipment an improved type of heat exchanger may be particularly mentioned. A feature is the elimination of tube sheets, so often the cause of leakage troubles, particularly where high temperatures and pressures are involved. Eliminating the tube sheets permits a better tube spacing with a view to increased heat transfer, permits the use of larger tube sizes, and by casing the tube bundle, does away with short circuiting around baffles (reduced efficiency), so often the case in the usual design. Several of these units have been in practical operation on high temperature and pressure work and have not only returned a remarkable increase in efficiency over the

usual type, but demonstrated ease of inspection and tube clearing.

Problem of Plant Design.—During the year the increase in knowledge of the chemistry and technology of petroleum and its constituents has made the problem of efficient plant design for a given crude and market demand increasingly complex. One thing is clear, however, and that is that technical advancement is rapid. The difficulties of refining facilities are numerous. The problem becomes all the more intricate through knowledge of the fact that what is selected and constructed today will in all probability be obsolete five or six years hence, for this industry has definitely abandoned its old-fashioned "hammer and tongs" practices.

FUELS

Coal.—The commercial situation in the bituminous coal mining industry, which has been bad for a number of years, has been aggravated by the general curtailment of industrial activity. In the first eight months of 1932 there was a decrease of 26.1 per cent over the bituminous coal production in the same period of 1931. The effect on those producers who have survived has been to compel the adoption of cheaper production methods, and the preparation of a more salable product and reduction of mining costs is being accomplished by closing higher cost lines and by further mechanization of operations. During 1931 the tonnage loaded by machine increased by 1.3 per cent in spite of a large decrease in total tonnage. A better product is being obtained by increased use of cleaning methods and more uniform sizing. The situation in the anthracite field has been somewhat more satisfactory. Through research and development of new equipment, demands are made to endow anthracite with the same attributes of cleanliness, convenience and efficiency possessed by fuel oil and gas. Research is also under way in an attempt to find uses for anthracite other than as fuel. As for example, it is reported that fine anthracite has been found superior to sand in water softening beds and an investigation is

under way to determine the possibility of using anthracite as electrode carbon. A large group of operators have formed a marketing organization which, being attacked by the government on the grounds of restricting free competition, is serving as an experiment which the entire coal industry is watching carefully. Its success would open the way for more or ganizations of a similar type.

Pulverized Coal Firing.—In the power plant field the drift toward the unit system of pulverized coal firing continued and a start has been made towards the distribution of pulverized coal to plants which have no grinding equipment of their own. Because of the intensive competition on the part of the pulverized coal there has been a strong effort to improve stoker design. Additional installations provided with zoned air control have been made, this system having demonstrated its usefulness and practicality under actual operating conditions. In one of the plants using zoned air control, it has been possible to operate at rates of firing up to 90 lbs. per sq. ft. per hr. for long periods of time with air temperatures as high as 570 F.

Natural Gas.—The progress of natural gas has continued through the year. The changeover from manufactured to natural gas was carried through in the Chicago district. Although statistics indicate a drop in natural-gas sales of about 8 per cent, the extension of pipe lines and distribution systems has continued hardly undiminished. Natural gas is becoming so widespread in its distribution that there is scarcely a section of the country that has not been influenced by either its advent or its approach. It is now a factor to be reckoned with in all branches of fuel utilization. It has affected the trends in boiler and industrial-furnace design. It has affected the solid-fuel market to such an extent that the Interstate Commerce Commission has given the railways authority to meet competition of Texas natural gas by reducing rates on industrial coal in the Middle West. Such a move is without precedent. It has become so cheap in

the Far West that water power has reversed its position, becoming a standby for steam generated by natural gas. Southern California Edison has abandoned some of its hydro sites and evinced a willingness to relinquish part of its share of the projected power from Boulder Dam.

Ash Handling.—A modification has been made in the design of multiple retort stokers permitting continuous discharge of the ash without the use of a clinker grinder or crusher. This design is especially applicable where head room is limited, since it requires less space than either the dump grate or clinker grinder. The general trend in ash handling is toward a finer clinker, partly for ease of handling the ash hydraulically and partly because of the greater use being made of ash for purposes other than fill. Clinker grinders to meet this requirement have been developed.

Stoker Operation.—Improvements have been made in stoker drive mechanisms, both mechanical and hydraulic, so that it is now possible to obtain almost an infinite variation of speeds within the limits practicable for stoker operation. Stoker sizes continue to increase.

Colloidal Fuel.—In the marine field a tremendous amount of attention was attracted by the experiment made by the Cunard Line in the use of what has been referred to as colloidal fuel. This is an oil in which a finely ground coal is held in suspension by means of a material called fixateur without which the coal would not remain in suspension. The idea is not new but apparently progress has been made in the matter of the fixateur. From information published about this process in England it would appear that its application would be limited practically exclusively to the marine field.

AIR PURIFICATION

The work of smoke elimination is being carried on. Atmospheric pollution from dust and sulphur fumes, however, is still a serious problem. The fact that there has actually been less of it in the last two years than for many years previously should not be taken as an indication of success

ELECTRICAL ENGINEERING

in the fight against dust and smoke, as a large share of the cleanliness of the present era is due to the low rate at which industrial concerns are now operating. Among interesting smoke studies has been the microscopic identification of smoke particles from different sources. It is claimed that the particles from different stacks have individual physical characteristics

which definitely connect them with their source. On the basis of such studies it is said that nine-tenths of the smoke particles in the New York City atmosphere come from small fires in homes, apartments and small office buildings. Any improvement in condition, if this is the case, must come slowly and only as a result of education of the public.

ELECTRICAL ENGINEERING

By J. G. BRAINERD

MOORE SCHOOL OF ELECTRICAL ENGINEERING, UNIVERSITY OF PENNSYLVANIA

INTRODUCTION

H. P. Charlesworth, in his presidential speech to the American Institute of Electrical Engineers, said: "It seems to me that we are in an era when the problems of the engineering profession are undergoing some rather important changes in their fundamental aspects, but . . . these very changes, as well as other factors, all point to further progress and opportunity." The changes are those which tend to emphasize social aspects, illustrated in extreme form by studies such as those made by the group of technical men organized under the name of Technocracy, which may very possibly be of lasting social importance. As far as the more narrowly technical field is concerned, progress continues at a rate at least equal to, and probably greater than, that of other years. Indeed, the depression has not "even mildly interrupted the logarithmic growth and progress of discovery and invention" (*Electrical World*). This is despite situations in industries most closely related to electrical engineering, as follows: Output of operating utilities (light and power companies) was between 5 and 15 per cent less than in 1931; the index of electrical manufacturing activity fell to the 60's, compared with 180 for October, 1929; the dollar volume of radio business fell to about one-third that of 1930; the telephone system lost subscribers at

a rate of 200,000 a month for part of the year; electrical transportation companies were in general severely affected by the economic situation.

LOAD BUILDING

Operating utilities have not been seriously disturbed by the depression. To compensate for the falling off in commercial load, the domestic load has continued to increase steadily, so that some utilities are faced with the need for resuming expansion programs laid aside several years ago. This in turn is likely to be reflected in increased electrical manufacturing. The Philadelphia Electrical Company has recently ordered a 150,000-k.w. generator.

The realization of the stability of the domestic load in times of business depression has apparently been an incentive to developing this source of revenue. Electric ranges, refrigerators, hot-water heaters, air conditioning apparatus, oil heaters, are being actively pushed by the utilities and manufacturers. As far as the latter are concerned, although the immediate future may not appear attractive when viewed from 1929 standards, the potentialities of the more distant future seem great. Air conditioning of large buildings promises to add appreciably to the utilities' load, and several outstanding installations have been made. In some cases electrical heating of buildings is practical (due to excep-

tionally good off-peak rates) while in Canada large electric boilers are being used to obtain steam.

Rural electrification continues at about its normal pace, with most farm homes unelectrified. Studies for reducing rural line costs appear frequently, the consensus being that no startling reductions are to be expected. Coincidentally new applications of electricity in large scale farming are being developed.

Considerable work is being done to determine the effect of electric heat, light, radiations, etc., on plant growth. Nursery beds heated by imbedded resistors have produced interesting results, decreasing growing time of plants and apparently increasing their ability to overcome destructive influences.

POWER SYSTEMS

Interconnection of certain power systems was made economically feasible because of the presence of excess generating capacity the use of which will not be required for local load soon. The "instantaneous" reclosure of breakers after a fault is likely to be practiced in the near future. About 80 per cent of faults which open breakers clear at once, and service interruptions of an appreciable length of time are believed unnecessary. Questions of system stability complicate the problem. A symposium of the A. I. E. E. devoted to time services showed that some power company engineers believe that the cost of maintaining frequency constant is out of proportion to the income from the load and electric clocks simply give consumers one more method of checking service and continuity, thereby increasing reliability and consequently the fixed charges needed. A method of the load control under which turbines in a system are operated at maximum efficiency has been evolved.

HYDRO PLANTS

St. Lawrence Developments.—The St. Lawrence treaty providing for a seaway from the Great Lakes and incidentally for hydro developments of about 2,000,000 hp. capacity was

signed and submitted to the Senate. American engineers suggested a single dam but the final agreement calls for two, as Canada desired. This will appreciably raise the cost of New York State's part of the project, and may result in delay. In any event there is no prospect of an early beginning of the electrical developments. The 500,000 hp. hydro plant of the Beauharnois Company on the St. Lawrence near Montreal went into operation in October.

Hoover Dam, Muscle Shoals and Columbia River.—Most contemplated hydro projects in the United States were held in abeyance due to the depression. Work on Hoover Dam is progressing. Muscle Shoals was again under discussion, a committee having recommended that it be dedicated to fertilizer production. Major-General Lytle Brown, chief of engineers, has reported "The Columbia River and its tributaries are susceptible of being developed into the greatest system for water power to be found anywhere in the United States." It is estimated 8,000,000 kw. could be made available at a cost of \$740,000,000. However, there is little likelihood of this potential source being utilized soon.

Economic Considerations.—The *Electrical World*, trade journal of the light and power companies, has suggested editorially that there should be no further hydro developments in this country because they are uneconomical, and because many fewer employees are required in a hydro than in a steam plant. "It has been recognized for some time that hydro is by and large no longer competitive with steam-generated power and that it can be developed only by being subsidized in some form . . .; the subsidy tends to reduce the national payroll." Disregarding the question of economical operation, it seems peculiar that technological unemployment should be used as an argument when one considers the huge number of technical developments of the electrical industry which tend to produce just that condition, and which a narrow application of such an argument might suppress. It is barely

possible that the *Electrical World* is attempting to conjure up the basis of a possible popular antipathy to hydro plants. For most hydro plants in this country can be recaptured by the state at the expiration of 50 years, and the idea of government ownership is repugnant to the utility group as a whole. Meanwhile the Federal Power Commission has extended its activities and its authority, and has been upheld by the courts in several important points. One of these is that it can determine the cost of a hydro structure built under one of its licenses, which resulted in halving the claimed costs in the test case.

TRANSMISSION

Vibration Problems.—Vibration of transmission line conductors continued to supply many problems for investigation. Since this general topic was introduced, somewhat casually, into technical discussions a few years ago, evidence has accumulated to show that in some cases vibration is a more important factor in transmission line service continuity than lighting, the effects of which have been studied extensively. Apparently some cases of vibration can be attributed to areodynamic instability explained by known theory; others are of a more indefinite nature and further investigation is necessary. One study has shown that conductors of various cross-sections have different vibration characteristics, a triangular cross-section being accompanied by minimum tendency to vibrate.

Lightning investigations are tending to emphasize the importance of the earth. It is now generally accepted that high-voltage lines can be protected to a great extent by ground wires, which must be so placed as to divert the stroke from other line conductors. However, on medium-voltage lines ground wires may cause more harm than good, particularly in the case of wood-pole lines where the effective insulation due to the wood poles may be reduced by the ground wire. Although present methods of lightning protec-

tion for transmission lines do not guarantee complete invulnerability, they do prevent many potential discontinuities and avoid the great wall of insulation once contemplated for this purpose. An improvement of a relatively new device is found in the application of the de-ion principle to the flashover protector. The latter is a simple and inexpensive device designed to suppress the power arc which often follows a flashover due to lightning, and which is one of the important factors in the service continuity problem. A surge generator rated 3,000 kv. and 36 kw.-sec. has been built to test line and terminal apparatus. In another laboratory a 10,000-kv. "lightning" flash is available. (Natural lightning takes place at voltages of the order of magnitude of 100,000 kv., currents are 10,000 to 500,000 amperes, times of discharge from 5 to 500 microseconds, energy 3 to 100 kw.-hr.)

Voltage.—The highest transmission voltage now used in this country is 220,000 volts; moderately higher voltages have been used elsewhere. Experiments are being carried on to determine whether 330,000 volts would be a practical and economical voltage for the line to connect Hoover Dam with the west coast, rather than 220,000 volts. Meanwhile word comes from Russia of new lines to operate at 500,000 volts.

Insulation.—Coordination of insulation results in increased effectiveness and avoidance of expense in insulating one part of a system more than another. The datum for coordination may be the insulation of the transmission line or of the terminal apparatus. An A.I.E.E. committee report advocating that the impulse rating of the transformer be used as the reference was criticized rather freely. One view is that the line, being exposed to lightning, is the base fixed by the nature of the problem. But because of the wide variety of transients it is extremely difficult to coordinate station apparatus insulation, and consequently another view holds that by setting a standard in the latter the line can easily be made to follow and a simplifica-

tion achieved. A suggestion was made that multiple conductors be used for transmission, but the theoretical advantages are apparently not accompanied by sufficient economic advantage over present separate conductors to warrant this. A combined rectifier and inverter has been developed abroad, which may bring nearer to realization the often-mentioned high-voltage d-c. transmission.

DISTRIBUTION

Costs.—Distribution problems to a great extent are cost problems, and advances in distribution hinge on such unspectacular accomplishments as reduction in costs of materials and apparatus, uncovering of substitute materials, reduction of installation costs, etc. Distribution systems represent large capital investments, and indeed a large part of the cost of electric energy is the charge on this investment. Yet in contrast with other aspects of the general problem of electricity supply, distribution systems are apparently of increasing unit costs, and there have been few outstanding improvements in the fifty years of their existence. Indeed all the principal elements of Edison's first distribution system are to be found in present systems.

Network System.—There are two conflicting demands to be faced in distribution system design, one for uninterrupted service, the other for low costs. The primary network system, described in the *THE AMERICAN YEAR BOOK* for 1931 was designed to replace the radial system under some conditions. In the radial system independent lines go to various centers of low-density load districts. Under the network plan, the independent lines radiating from a station are replaced by a network, quite similar to the low-voltage underground networks long used in districts of high load density. One big advantage of the network system is that increments in load can be met by increments in the system roughly proportioned to them, whereas in the radial system it is frequently necessary to extend the system far ahead of the load, and allow the latter to grow

to it over a period of years, thus tying up considerable unused capital. One new development of the year was a circuit-breaker, using the de-ion principle, which can be manufactured so cheaply that a low-voltage overhead network in certain low-density load areas seems justified. Heretofore low-voltage networks have been used only when the load was sufficiently dense to justify underground distribution.

Lightning Protection.—A group of investigations has shown that the many unexpected failures of distribution transformers due to lightning disturbances may be eliminated by interconnecting the ground lead of the lightning arrester on the primary side of the transformer with the transformer secondary neutral. By this the voltage across the transformer insulation is more likely to be limited by the arrester.

INSULATION RESEARCH

Active insulation research covers a field extending from the frontier of atomic physics to problems of application. It is impossible to summarize the theoretical side in short space; the reader is referred to "A Resumé of Progress in Insulation Research," by J. B. Whitehead, in *Electrical Engineering* for November, 1932. A new insulating liquid called "pyranol" has been developed; it has properties equal or superior to those of oil, and in addition is non-inflammable and non-explosive. It has great potentialities in reducing the size of apparatus (dielectric constant is twice that of oil) and in reducing the explosion hazard necessarily present when oil is used as an insulator. Three 115-kv. oil-filled cables have been laid in the Columbia River between Washington and Oregon. They connect overhead transmission lines, and extend over a mile of river bed. They are the first of this type and the highest-voltage submarine cables in use. High-voltage cables are being extensively studied, particularly with regard to the relation between temperature cycles and stability, and with regard to the possibility of reduction in insula-

tion thickness. Textile insulation used in the telephone field has been improved.

MACHINERY

Generators with rated terminal voltage of 33,000 volts have been built in Europe, using layer insulation similar to that in cables. A recent 36-kv. generator utilizes a new insulating material. In this country 22,000 volts continues to be the upper limit for terminal voltage. A speed of 3,600 r.p.m. for medium-sized generators is becoming more popular. It has been suggested that the size of large generators is approaching the maximum possible under present design, and that a radical change must be made to obtain appreciable increase in output. By operating a generator at high power factor, and having a synchronous condenser supply reactive kv-a., an output of 375,000 kv-a. might be obtained. There is question as to the necessity for generators larger than those now available until the light and power industry expands greatly.

Transformers are of primary concern in the discussion of insulation coordination reported under "Transmission." By superposing an impulse voltage on the maximum of the sine-wave rated voltage, a dynamic test has been achieved which simplifies and extends the testing of transformers.

Circuit breakers have been improved in the last three years beyond the fondest hopes of designers. There remains the question of theory, which is still widely discussed and not settled. The many applications of the de-ion principle, to air breakers, lightning arresters, etc., makes it the more valuable, and it seems to have a much better experimental basis. However, the advocates of the oil-blast principle appear satisfied that their oil circuit breakers can compete with the de-ion oil breakers. The de-ion principle has been applied to a fuse in which turbulence due to gases created by vaporizing boric acid so accelerate the de-ionizing process that the arc is extinguished when the instantaneous current is

zero. Currents of 20,000 amperes at 12,000 volts have been interrupted by this new and simple device. In Europe steam and compressed air have been used experimentally in circuit breakers.

Motors have been improved and their applications increased and interchanged (between types). The tremendous number of new applications of electrical apparatus in industry each year cannot be enumerated here. Suffice it to say that the depression has not cut the rate greatly. Indeed, there has been some incentive to the development of low-cost labor-saving apparatus.

New Relays.—Several new relays were announced but discussion by operating engineers tended to indicate that the complexity of complete relaying makes return to the pilot-wire system or some equivalent carrier-current system desirable.

TRANSPORTATION

Pennsylvania Railroad. — The Pennsylvania Railroad is carrying out the only major electrification now being made in this country. With the aid of a government loan it is hoped to have the New York to Wilmington (Del.) line in operation early in 1933. The 150 locomotives which have been ordered will have single-phase motors in which advantage has been taken of recent developments to yield simpler, lighter and cheaper locomotives. The passenger locomotives have greater power per axle and the motors have a higher rating per pound weight than any previous ones. A unit construction adds greatly to the flexibility of the group. Two 30,000-kw. frequency converters for supplying 25-cycle energy to the Pennsylvania system in the Philadelphia area have been installed outdoors.

Commutatorless Motor.—It is possible that the design of railway motors will be radically changed by the use of a grid-controlled mercury-arc rectifier as a static commutator. An experimental motor is now being built. Such a commutatorless motor would have not only a simpler structure, but much expensive control,

switching and reversing equipment would be eliminated, and the need for low-frequency energy supply would be obviated.

Elevators. — Economic justification of major building projects is in many cases dependent upon the design and arrangement of vertical transportation devices. The advances which have been made in this field in recent years are well illustrated by the elevators in the new U. S. Parcel Post Building in New York City. Nine freight elevators each capable of lifting four tons at a rate of 200 ft. per min. will be installed. "In riding qualities, control, and accuracy of landing, they will equal or excel the best expected of passenger cars a few years ago." Together they will be able to handle approximately a thousand tons of parcel post mail an hour. In another new building duplex elevators (two in one shaft) have been installed.

Escalators. — Newly - developed escalators of double the speed and capacity of former ones have been installed in certain London subway stations. It is reported that patrons have readily accommodated themselves to the higher speeds. In this connection it is interesting to note that an engineering study has shown that appreciably more people could be transported at greater speed and lower cost by a given subway using continuous trains on parallel tracks. Under the plan, a loading platform would stop at a station, then accelerate to the speed of the steadily moving train on the inner track into which passengers would step when the relative speed was zero.

ILLUMINATION

Lamps.—In the field of illumination there is a situation analogous to that in radio: television is a laboratory but not a commercial achievement, and the low-voltage gaseous lamp is in a similar category. The incandescent lamp has been developed to a point where it now approaches its maximum theoretical efficiency; for this reason new developments are sought in a light source of totally different character. The

ideal gaseous-discharge lamp will be one which operates at a low voltage (110 volts) and at such a frequency (60 cycles or more) that there is no flicker noticeable; it should not appreciably decrease in efficiency with age or with heating and it should contain in a relatively small assembly the balancing impedance which gaseous lamps require. There is no lamp which satisfies all these conditions, although some approach them. The gaseous-discharge lamps now used commercially either operate at high voltages (2,000 to 10,000 volts) or make use of a transient high voltage to ionize the gas at starting. Some advantages to be derived from gaseous-discharge lamps, if they eventually become generally competitive with the present incandescent lamps, are higher efficiency, a distributed as contrasted with a concentrated light source, and an energy spectrum which can be made to approximate that of sunlight (in the visible frequency range). A few experimental installations have been made with gaseous-discharge lamps and incandescent lamps operating together as a unit. Light intensities roughly comparable to that of sunlight are obtained, but there is not much new in this; such combinations have been known (but little used) for twenty-five years. One low-voltage gaseous-discharge lamp installation in which other types of lamps are not used has also been reported. In Holland a mile of highway has been equipped with sodium gaseous-discharge lamps; increased effectiveness and lower costs are claimed.

Street lighting, which is often considered the application of lighting in which "practise has lagged most behind growing needs" (A. I. E. E. Committee on Light) faced a possible setback in the universal need for municipal economy, but in the few cities in which the amount of lighting was reduced there were quick returns to previous standards. Studies have shown a direct correlation between auto accidents and lighting, and between highway crime and lighting. Chicago is the only major city which is improving its

street lighting on a large scale (250 miles of streets). It is interesting to note that three states (New York, Massachusetts, Maryland) have taken steps toward illuminating highways outside of cities. In Massachusetts a section, 2.3 miles long, of an important road has been lighted as an experiment in interurban road lighting. A bridge at Sydney Harbor, Australia, has the lighting units installed on the roadway rather than elevated on standards, and this plan has been seriously suggested for new roads in the United States. It would be possible to "build in" provision for such lighting, but the cost would be great, as it is likely to be in any case.

Lighting Design.—The Illuminating Engineering Society in cooperation with the Beaux-Arts Institute has established an annual prize for architectural students, the 1932 project being the designing of lighting for an exhibition hall at a world's fair. Many unusual lighting effects are planned for the 1933 Chicago Fair, the buildings of which will have no natural light (no windows).

Other developments in illumination include the following: A gaseous light source, in which a high-frequency field is used to energize atoms, has been demonstrated. It produces an intense light from a small source without generating appreciable heat, and if it lives up to its description is likely to find important applications in television, motion-picture projection, floodlights, etc. For these same uses carbon arcs have been improved, in one case a 50 to 100 per cent increase in light output of floodlights and searchlights having been obtained without increase in current. What is said to be one of the first major advances in anti-aircraft protection has resulted from the use of a mirror system with a searchlight, resulting in a covering of much more area at cloud height by one searchlight. In photography it has been shown that the white flame photographic carbon arc gives results almost identical with those obtained with sunlight. The "photo-flood" lamp, operating from an or-

dinary house lighting circuit, has been developed for photographic work requiring longer than "instantaneous" exposures. It is a companion of the "photoflash" lamp announced in 1931. A three-flament headlamp has been designed to give an asymmetrical light distribution with reference to the automobile axis, more light going to the right than to the left, and different light distributions being available for city driving and country driving. An attempt to use selective reflection to determine grades of wheat failed, the selectivity being too indefinite. An interior decorator has advocated built-in indirect floor lights for homes, with dimmer control. This system is now used extensively in Europe and is in line with the tendency to get away from fixtures and ideas which continue from the age of gas lighting, and to use electric lighting in a wholly different manner. House and industrial wiring is still the bottle-neck, restraining the wide adoption or possibility of adoption of many new devices and plans. Some attempt is being made to standardize a minimum wiring specification for new projects which at very little cost beyond that of present installations will greatly increase the capacity of the consumer's wiring system. Studies have shown a partial correlation between school failures and quality of classroom lighting.

ELECTRON TUBES

"The electron tube is likely, in the next ten years, to be applied to a diversity of applications in the industrial and commercial field which no one can visualize now. The applications which will have the most far-reaching effect will most likely be those that substitute for human supervision and control. Radical changes in production methods and possibly machinery may result because of the economies or improved quality of product made possible."

This paragraph from a summary of an article in the *Electrical World* visualizes well the commercial potentialities of electron tubes. The particular article described an electron

tube control for a paper cutter register; myriads of other such applications have been made. Many certainly add to technological unemployment, for example, there has been developed a machine using photo-electric cells which allows half-tone cuts to be produced by inexperienced labor at low cost and in much less time than present skilled-labor methods permit. Another photo-electric device operates a typesetting machine automatically from original copy (which, however, must be prepared on a special typewriter). A special vacuum tube in which the grid current is restricted to extremely small values has been developed to work directly from a photo-electric cell and into meter or other load.

The numerous applications of electron tubes, in addition to the familiar radio, television and other communication uses, range from new control, converting and regulating devices in electric circuits to bean sorting in the coffee industry and the automatic opening of doors for waitresses in restaurants. In particular there have been many applications in the iron and steel industry, and these account in great part for the following statement of the A. I. E. E. Committee on Applications to Iron and Steel Production: "A major trend toward increased use of refined control equipment for automatically performing tasks which had previously required manual labor was continued during the year. While such equipment was installed at a reduced rate in 1931, the percentage of men whose duties were no longer required in the steel industry due to such automatic devices increased."

An experimental installation of a mercury-vapor rectifier (not to be confused with a mercury-arc rectifier) of commercial size (150 kw.) has been made in Boston.

Cathode-ray tubes have ceased being laboratory instruments and are now being manufactured on much the same basis as other oscillographs.

RADIO

Television is still a non-commercial development. The Radio Manu-

facturers' Association lists the following problems yet to be overcome: greater detail must be obtained in the received picture; television pick-up equipment should be made portable and as easily used as present sound-picture pick-up equipment; the range of the transmitting system must be increased; receivers as simple in operation as present radio receivers must be designed and the cost must be reasonable. Meanwhile in England a theater audience viewed a horserace as it was run, the television pictures being on a screen 9 by 7 ft. In this country an attempt has been made to use a light beam as the carrier in television broadcasting. Television broadcasting is likely to be limited to optical distances because of the high frequencies (30,000,000 cycles per sec. and greater) which are necessitated in order to obtain the wide band of frequencies required. In consequence the use of a light beam (light is composed of electromagnetic waves of extremely high frequencies) may not impose a very serious limitation. The advantage lies in the ready availability of the carrier source.

TELEPHONY

Amplifying Devices.—The national conventions of the two major political parties offered good illustration of the many advances in communication which have taken place in recent years. More than 160 broadcasting stations were linked together by the special circuits which the Bell System has installed for program transmission, a much broader frequency range being required for this than for person to person telephony. Speakers were supplied with lapel microphones, a recent development of the Bell Laboratories which enables a speaker to use the amplifying system of a hall with virtually no inconvenience and considerable mobility. Press picture services used telephotographic service extensively. Ten or fifteen years ago these communication methods were either novelties or unknown.

Large private branch exchanges have been greatly improved, and a

new type developed in which outgoing and local calls can be handled by dial switching equipment while incoming calls are handled manually.

Transmitters.—The handset which has become popular in recent years represents an important design development, the difficulties of which are not widely appreciated. It has taken a tremendous amount of experimenting and testing to produce a transmitter which is not sensitive to position as is the older desk set. A radically new design involving a different type of carbon chamber has been evolved. Howling is avoided by making the handle connecting transmitter and receiver anti-resonant, and by using an extremely light diaphragm which does not readily respond to mechanical vibrations.

Textile insulation, extensively used in the telephone plant, has been improved. A thin film of cellulose acetate deposited on the insulation reduces the variation of dielectric constant with humidity.

Transoceanic telephone service has been extended from the United States to Siam and to Alexandria and Cairo in Egypt. About 92 per cent of the 35,000,000 telephones in the world can now be reached by an American subscriber. A new transmitting station is being erected in Florida, which will help provide radiotelephone service between the United States and certain Central American countries. Meanwhile other countries of the world are being interconnected, and progress has been made toward the creation of a tandem station for calls of subscribers in countries between which there is not direct radiotelephone communication. The experimental radiotelephone between the United States and England, set up a few years ago by the American Telephone and Telegraph Company and the British Post Office, has already produced results which its most sanguine supporters could hardly have envisaged. Few believed that the radiotelephone would be both a technical and an economic success.

Ship-to-shore radiotelephone service has been made available on more

liners, and a radiotelephone service for harbor craft and fishing boats is being tried in and near Boston harbor.

The teletypewriter service of the Bell System has doubled in its year of existence. There are now more than 130 exchange service switching points. Communication facilities have been an important contributing factor to the development and improvement of air transportation, and in this connection it is interesting to note that the Department of Commerce has provided 67 radiotelephone stations at approximately 200-mile intervals along certain routes for sending to planes weather reports and directive radio beacon signals. Teletypewriter service is used for transmitting weather reports to these stations and to some 200 other ground stations.

Electrical phenomena such as the aurora borealis, earth currents and the motion of the earth's magnetic poles are important in both wire and radio communication. The aurora borealis is usually accompanied by high earth currents which may seriously interfere with grounded telegraph circuits. The short-wave transoceanic radiotelephone is also adversely affected, while the long-wave circuits are not so seriously affected and may even be improved. For these and other reasons the Second International Polar Year, designated to begin Aug. 1, 1932, may yield results not only of great theoretical interest but also of possible practical use. The United States group is at Fairbanks, Alaska, and the Canadian group at Chesterfield Inlet near the magnetic north pole.

Voltage Problems. — The cooperative efforts of the Bell System and the National Electric Light Association, representing the electric utilities, to coordinate the systems of the two groups so that destructive voltages are not induced in the telephone system by nearby power lines (THE AMERICAN YEAR BOOK, 1931) have apparently given an impetus to this method of attacking such inter-system problems. The Joint General Committee of the Bell System and

the N. E. L. A. has already done considerable work and issued numerous engineering reports. Joint general committees of the Western Union Telegraph Company and the N. E. L. A., the Bell System and the American Railway Association, and the N. E. L. A. and the A. R. A. are now organizing. The first two have issued some reports for the guidance of the industries on mutual problems.

TELEMETERING AND SUPERVISORY CONTROL

Telemetry is the term applied to the indicating of magnitudes of physical quantities, at places an appreciable distance from those quantities. Supervisory control is the term applied to the control and operation of remotely-located units of apparatus. An example of the latter is the dial telephone, which, when used, operates apparatus in a telephone central office. In utility systems, generating stations large enough to supply a city of 100,000 inhabitants may be remotely controlled and unattended except for occasional inspection of the apparatus. Currents, voltages and other electrical and mechanical quantities may be known at the control station.

Both telemetry and supervisory control are essentially communication problems, and many of the achievements of telephony have been taken over in the development, in these two fields, of applications for power systems,—a development which has taken place almost entirely in the last ten years. Thus engineers of the power systems are found discussing simplex, duplex and phantom circuits, the effect of earth currents on ground potentials, and the results of power system transients on nearby telemetry or control lines. These are topics which have long been the concern of the telephone engineer exclusively. The last one represents one phase of the problem of inductive coordination, discussed in the last paragraph under Telephony, above.

An example of the use of telemetry and supervisory control is to

be found in New York City's subway, which has the most extensive system now in use. The load dispatcher has automatic control of 89 substations located at various points in the city, and has before him meters showing conditions at these substations.

An installation which may point to more technological unemployment is to be found at Sand Springs, Okla., where there is a trial remote-control pumping station for an oil pipe line. There are more than 150,000 miles of such line in the United States, requiring pumping stations at intervals of 30 to 40 miles. The number of men per station varies, nine being used on one typical line. The remote-control station requires no attendants.

INSTRUMENTS AND MEASUREMENTS

Electrical indicating instruments are now used for the measurement of not only electrical quantities, but also noise, light, color, speed, temperature, mechanical vibration, tension, viscosity, friction, over-all efficiency of machines, etc. Many factories use meters marked "Good" over one part of the scale, "Reject" over the other, for quality inspection. Thus an improvement in an electrical measuring instrument may be reflected by better measurements in many apparently unconnected fields. An example is given by the announcement of a new recording meter which accurately records currents of a millionth of an ampere or frequency in hundredths of a cycle. "It makes a continuous graph of radio-receiver performance and resonance curves. It can be combined with an electric gauge to record thickness of sheet metals and paper. With the proper pick-up, it records noise intensity, illumination intensity, vibration intensity, and temperature." This is the first recording meter of the stated accuracy which has been produced on a commercial basis, although non-recording instruments have been available and much more refined measurements have long been laboratory feats. A

photo-electric cell and amplifying unit are used, the motion of a light beam reflected by a galvanometer actuating it. This apparatus brings the accuracy of recording instruments up to that of corresponding non-recording ones. There have been improvements in bridges for measuring small power-factors and capacitances, in oscillographs and many other instruments.

X-RAYS AND WELDING

With the development of a 300,000-volt 10-milliamperere, water-cooled industrial *x*-ray tube it is now possible to investigate the structural details of metals $\frac{1}{4}$ in. thick. The use of *x*-rays for non-destructive testing of castings and welded joints is widespread, and the development of industrial tubes for testing thicker metals has allowed the welding of the latter. High-speed *x*-ray apparatus has been developed for use in medicine, pictures being taken in one-thousandth of a second. Two transformers, each rated 700,000 volts and 0.03 amperes, have been supplied to the Kellogg Radiological Laboratory of the California Institute of Technology. They will supply 1,400,000 volts to an *x*-ray tube, to be used in cancer research. There are numerous other uses of *x*-rays, and those in industry are increasing. The effects of *x*-rays (and other electro-magnetic radiations) on growth of plants, etc., are being studied extensively, not only in biological laboratories but in the research laboratories of electrical manufacturers as well.

The use of electric welding promises to be great when economic recovery comes. Already welded ships, buildings, bridges, etc., are being compared with their rivetted counterparts. At a British meeting it was said that shipbuilders are ready to quote lower prices on all-welded ships than on corresponding rivetted ones, and that a saving of 12 per cent in weight together with increased strength can be thus obtained. In this field, apparently, as in others, the introduction of welding will change fabricating methods greatly. The perfection of the shot-welding

process, a method of welding stainless steel without causing the steel to lose its rust-resistant properties, seems to make possible the extensive use of this metal. This may lead to interesting developments in ship construction and in roofing for all types of structures. A bridge near Pittsburgh, Pa., has an all-welded floor which allowed a saving of half of the usual weight of this portion of the bridge.

There are numerous fundamental problems which need investigation, as is attested by the list published by the American Bureau of Welding, a joint research board affiliated with the American Welding Society and the National Research Council. Some of those discussed by electrical engineers were the physical mechanism of welding, and the relative values of a-c. and d-c. welding. There have been difficulties in the way of a-c. welding: a high open-circuit voltage, unstable arc, and difficulty in the use of small currents. A big obvious advantage of a-c. welding is the elimination of apparatus for changing alternating to direct current, since alternating current, not direct current, is usually available. The difficulties appear to have been overcome in new apparatus in which a high-frequency current is superposed in the welding circuit. Most electric welding has been done by d-c. apparatus, but opinion seems to be veering toward the view that a-c. welding is, or can be, as good as d-c. welding.

As to the physical mechanism of welding, it is probable that "liquid globules are the chief form of metal transfer, although there is some metal transfer as a vapor and as a mist." At the February meeting of the A. I. E. E. it was pointed out that none of the accepted physical theories—thermionic emission, ionization by collision or high potential gradient at the cathode—can account for some experimental results.

ELECTROCHEMISTRY

The patent covering the new Drumm storage battery (THE AMERICAN YEAR BOOK, 1931) discloses it to have a zinc cathode, an electrolyte of a saturated solution of zinc

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oxide in caustic potash, and an anode which may be one of several possible combinations, nickel oxide, graphite and silver oxide in nickered steel pockets being suggested. (Many patent applications of this type list the poorer of the possible combinations, to keep the best secret as long as possible.) Drumm batteries are being used in continuous service as the energy source of a train of the Great Southern Railway, Ireland, which covers 230 miles per day. It has been claimed that the cell has higher voltage, normal discharge and charge rate, and efficiency than corresponding cells previously known. A possible application of this new battery—one of the few developments in storage batteries in the last decade—would be in cars for short-haul low-density traffic railroad branches. Gasoline-electric drives now popular for this work have several drawbacks. A practical electric automobile is conceivable.

There is a difference of opinion as to the availability of energy from Hoover Dam for electrochemical industries. Some engineers have pointed to the extensive mineral deposits and other raw materials near Hoover Dam and to the increasing energy costs at other sites as indicating the growth of an electrochemical industry at Hoover Dam comparable to that at Niagara Falls. Others have suggested that transportation costs to the principal markets will not justify the location of a portion of the industry at Hoover Dam. It seems reasonably certain that the potentialities are great, although the realization will depend to a large extent on transportation costs.

MISCELLANEOUS

A National Council for Engineering Development has been formed by the major engineering societies. It plans to accredit engineering schools, set standards for engineering training, and otherwise do for engineering what the American Medical Association does in this respect for medicine. This has not been practical heretofore because each society has acted alone.

The International Electrical Congress—the first since 1904—met in Paris. Fifty-one years ago the first such congress convened. Virtually all fields of electricity were reviewed, and the proceedings of the Congress are an admirable summary of developments up to the present. Sixty papers were presented by Americans.

The 1933 Chicago World's Fair ("Century of Progress") will have an extensive electrical exhibit.

The year 1932 was the fiftieth anniversary of the founding of the electric light and power industry. On Sept. 4, 1882, Edison's Pearl Street (N. Y. C.) station began operation, the first in the world.

A new magnetic separator for feebly magnetic materials has been developed. There are about 40 minerals in addition to iron which are magnetic, hence this separator may have wide application in mineralogical work.

A new weather-resistant covering for wires has been reported. The lack of such a covering has led to the use of bare wires in exposed places.

Interesting studies of the effects of electric shock are being carried on at Johns Hopkins.

AUTOMOTIVE ENGINEERING

By AUSTIN M. WOLF

CONSULTING AUTOMOTIVE ENGINEER, NEW YORK CITY

GENERAL

Outstanding progress for 1931 in the passenger car field has been a development of low-priced vehicles

with performance characteristics heretofore associated only with the larger cars, such as riding qualities, acceleration and sustained high

speed. A striking new design in the bus field consists of a city type with complete floor space devoted to the carrying of passengers, the twelve cylinder horizontal engine being located beneath the floor. In the truck field there has been great activity in the development of door-to-door delivery vehicles.

ENGINE

Cylinder Developments. — The eight-cylinder engine retains its supremacy and is entering the truck field. Many innovations have been worked out in the twelve-cylinder horizontal engine which is located to the rear of the front axle with a driving shaft extending forward to an accessories unit behind the forward-located radiator and including a fan, water pump, air compressor, generator, and steering servo-pump.

Compression ratios have increased very slightly, the main increases being in the case of optional high compression heads. The inserted exhaust valve seat has found many new adherents, reaching down into the low-priced field. One manufacturer has eliminated the valve tappet adjustment and replaced it with an automatic, hydraulic take-up mechanism fed by oil from the pressure lubricating system. With maintained zero clearance, there is no tappet noise.

Alloy Castings.—A noteworthy accomplishment of the year has been the development of a special alloy cast iron for cylinder use in which grain growth has been kept to a very low rate. The extremely dense structure gives a tensile strength of 60,000 pounds to the square inch and a Brinell hardness of between 280 to 300. Aluminum cylinder heads are being used to help eliminate the tendency to detonate, as well as a composite head construction in which the combustion chamber side is a permanent mould aluminum alloy casting and the upper part made of ordinary gray iron.

Shaft Experiments. — There has been considerable experimentation with cast cam shafts and crank shafts in lieu of steel forgings. The

cam shaft has been developed for production and reflects another noteworthy metallurgical feat. The cast iron alloy contains nickle, chromium and molybdenum and is made in a combination mould of metal and sand.

Pistons.—There is a trend toward the use of aluminum alloy pistons having a low co-efficient of expansion and which are elliptically cam-ground to be circular at normal operating temperature. The split skirt type of aluminum piston is giving way to a T-slot construction not extending to the bottom of the skirt but maintaining a continuous band which can be fitted quite closely to the cylinder bore. Floating piston pins are used to a considerable extent and are held in place endwise by aluminum plugs. A new development is the electro plating of cast iron pistons with bearing metal to ease the breaking-in period.

Bearings. — The babbitted, steel-backed, interchangeable bearing heretofore used for main bearings is now being used at the connecting rod big end instead of spun-in babbitt. A small eight-cylinder V engine has a split, steel-backed, floating type bearing babbitted inside and out, fitting over the crank pin and side-by-side connecting rods encompassing it.

Lubrication.—Force feed lubrication to main, connecting rod and cam shaft bearings is being used by the smaller engines. The oil temperature regulator is being more widely adopted. Some engines provide splash lubrication when the engine is first started, after which a scavenging pump removes all the oil from the crank case and converts it to a dry sump type. Case hardened water pump shafts, as well as nitralloy, are being used. One water pump shaft bearing is lubricated by water from the high pressure side of the pump. The vogue in radiator designs is toward the V type, sloping forward at the bottom.

Control Units. — Manual hot-spot heating of the intake manifold is being supplanted by automatic thermostatic control responsive to manifold temperature. In one case the

thermostat is sensitive to outside air which is lead thereto and at the same time utilizes this air if necessary to maintain correct and constant mixture temperature. The automatic choke, introduced last year, now has a considerable following and is supplemented by automatic means causing the engine idling speed to be greater when cold than when hot. For commercial car use, a governor with very close speed regulation and causing no loss of power, has been introduced. The manifold vacuum closes the governor butterfly under control of an electro-magnetic valve. A centrifical unit on the distributor shaft makes contact at the pre-determined speed. A new, straight-through type muffler has been developed in which the perforations in the central pipe are surrounded by a series of resonance chambers.

Distributors.—A simplified distributor for a small V-8 engine is mounted at the front end of the cam shaft, having two distributor arms revolving at right angles to the two opposite distributor caps. Intake vacuum control of ignition timing consists of a centrifical advance unit which causes rotation of a disc and in turn the breaker, as the weights fly outwardly. Pins on the weights engage in diagonal slots of the disc and cause its advance. A piston with a brake shoe under the influence of a spring, bears against the edge of the disc when the manifold vacuum is low, thus contracting the centrifical unit and retarding the spark. Under high vacuum, the piston and its brake shoe are withdrawn, allowing the centrifical unit to act undisturbed.

The Starter.—In place of the usual starter pedal, one make utilizes a button control on the instrument board. A solenoid mounted above the starting motor housing engages the starter pinion. The starter cannot be operated unless the ignition switch is turned on.

CLUTCH

The vacuum clutch control is still popular and has been further refined by the addition of a cushion control

valve which consists of a pendulum that swings parallel to the line of motion of the car and as it passes either side of its normal position operates a cut-off valve in the bleeder line from the actuating cylinder to the bleeder slot on the accelerator control valve. It smooths out the clutch engagement and prevents any possible jerking.

One make of clutches with a flexible center driven plate retains the springs by means of half round wires passing through them, replacing the former tabs and allowing the use of a larger spring in the same space. In some models the springs are located in alternately unequal length pockets in the driven plate. This arrangement provides the full load carrying capacity of all springs during engine acceleration but only half of the springs are initially active when the car is driving the engine. This construction allows dampening of acceleration rattles in the transmission where it is not possible with driven discs having the same deflection characteristics in the forward as in the reverse direction of torque.

TRANSMISSION

The low-priced cars are now using helical gears for the counter shaft drive and second speed gears in order to obtain silence. One make uses all gears of this type, including the reverse idler. The transmission of the twelve-cylindere city bus provides helical gears on all four forward speeds. Extra bearings on main and counter shafts prevent their deflection, preserving gear alignment and mesh. A truck transmission has been developed to provide easy shifting, in which a vacuum cylinder at the rear of the transmission controls a clutch and free wheeling unit. The gear shift lever ball has been made on one make of vehicle of soft rubber to prevent transmission of vibration to the driver's arm. Free wheeling is continued with the modification that in some constructions, the unit is entirely within the transmission and its locking member is mounted on the spline of the main shaft.

UNIVERSAL JOINT

There has been a decided trend towards joints utilizing needle bearings in place of plain bushings. One make of joint has been improved by substituting graphite impregnated bronze washers and bushings for the previous plain type.

REAR AXLE

By decreasing the overhang of the shafts over the outer axle bearing, one maker has been able to reduce the diameter of the driving shafts. The wire wheel hub is of such a large diameter that the brake drum is located partly within it. This maker has reduced the track to 54 inches and the rigidity of the axle housing at the expense of no extra weight has been increased by welding the cover to the housing center. The two-speed axle introduced last year is being used by another manufacturer who provides a pre-selection of ratio by moving the dash control lever at any desired time whereupon subsequent clutch pedal depression causes the shift. With the object of silence and a low driving shaft position, the worm drive is increasing.

BRAKES

There is a tendency to wider brakes with smaller diameters due to the use of smaller wheels. The Centrifuse drums are increasingly popular and remain unchanged in design except for the backing plate which has been made lighter, but the lateral rigidity increased through convolutions. While most makers apply a greater braking effort to the front wheels, one popular low-priced vehicle distributes 60% of the braking effort to the rear.

FRONT AXLE

One of the old adherents of the tubular axle center is now building vehicles with one section drop-forged centers. A number of other makers have adopted the tubular center, due to its torsional rigidity. The spring pads are welded on. One maker utilizing a wish-bone with the front axle now anchors the back end thereof in rubber to the center frame cross member.

WHEELS, RIMS AND TIRES

The trend towards small wheel diameters continues and the 17-inch rim predominates. A few light cars have adopted the 16-inch rim and there seems to be the possibility of 15-inch rims in the near future.

The super-balloon tire with pressures ranging between 16 to 24 pounds per square inch has been introduced, but only one make is using it as standard equipment. Other interesting tire developments are tires for farm tractors and rail cars. In dual tire installations, considerable wear has been found on inside tires, this being attributable to deflection of the axle and also crowned roads.

A new artillery type steel spoke wheel has been developed. The smaller tire diameters and the drop center rim have made this wheel possible because the spoke lengths can be drawn from a narrow strip of metal.

SUSPENSION

One maker utilizing transverse springs has placed the rear spring back of the axle in order to lower the frame and places a slight forward offset at each side of the spring. Rubber-bushed shackles are still popular. A new type of U shackle has been introduced, consisting of two hardened sleeves, threaded inside and out, together with a U shaped link also threaded. The sleeves are screwed into the eyes of the spring and the frame brackets, and at the same time the legs of the U are threaded into the sleeves. There is an increase in the placing and at the same time the legs of the frame in order to lower it.

FRAME

The X member type of frame has found new adherents. Front end rigidity is being sought and a new rugged construction provides a front cross member extending diagonally forward at each side and continuing within the side rail to reinforce it. The X members continue forward and extend diagonally inward to meet the front cross member and from a box section therewith over the central portion.

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CONTROL

There is a tendency to produce a faster acting steering mechanism. To secure the very easy steering effects which the public has been educated to, the stepping up of steering ratios calls for the very highest overall efficiency. The use of anti-friction bearings is helping in this regard but calls for the close attention of accurate front end geometry. Several makes of car are using a transverse drag link to obtain better steering geometry. This construction also allows greater inclination of the steering column.

Power steering is being used on two makes of buses, being of the hydraulic booster type. This in line with compressed air operation of the clutch and easy gear shifting, reduces driving fatigue to the lowest possible point and is certain to continue in the heavier commercial vehicles. A door-to-door delivery wagon is provided with a single control lever which is connected with an automatic clutch, throttle and booster brake so that downward movement accelerates the engine and engages the clutch. When the lever is moved to a neutral position, the throttle is closed and the clutch disengaged. Upward motion applies the brakes.

EQUIPMENT

The manual ride-control is being supplanted in a number of cases by an inertia automatic type of shock absorber. The ride is controlled through the intermediary of a floating valve, held open by a very sensitive spring and actuated by the movement of the chassis as it passes over various types of roads. The shock absorber offers resistance due to rebound, but allows freedom of the axle to drop into a depression. On a smooth road no resistance is offered.

SHEET METAL

The single control handle for hoods is used in increasing number. Since it engages with brackets on the dash and radiator, the hood is utilized to give rigidity to the front end structure. A number of front fenders are formed with a high hood-sill line,

above the frame instead of on it. Appearance is greatly improved and the stamping operations facilitated. There is an increase in the construction combining the fender and radiator bracket and mounting it on the front cross member and uniting it in with a radiator shell liner and the lamp cross rod. Fenders sweep down in front to a greater extent and in some cars a concealing valence has been added to the fenders, back of each wheel. The chassis parts are completely enclosed from view and road splash is greatly diminished. Rear enclosure aprons of very smooth contour hide the gasoline tank and the rear end of the frame.

BODY

Design.—The most conspicuous developments of the year center in body designs in which smoother contours, front and back, are used and a greater approach towards streamlining obtained. The V and tilting radiators are a great asset in embellishing the modern body with its rakishly sloping windshield. Heretofore the greatest air resistance has occurred at the rear of the body where a high vacuum is induced due to its square termination. A number of the new bodies provide a rear panel which is flared back in conformity with the back sweep of the rear fender. In preparing the public's eye to accept this type of construction, future streamline developments can be accomplished. Where the rear body panel is used instead of a separate apron, the continuity of line conveys a conception of speed and presents a smooth contour that bespeaks the elimination of air resistance. Rubber grommets are used to fit around the filler spout to close the opening in the rear panel.

Ventilation.—A new ventilating system has been built into some bodies, consisting of a split section in both front windows and of the rear quarter windows in all sedans. The front sections or ventilators pivot, top and bottom, so as to swing out under the control of the inside lever and induce a vacuum within the body. The rear window sections of

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the front doors can be moved up and down as heretofore. The rear portion of the quarter windows are fixed, the deflector giving ample ventilation. Cowl ventilators are used in conjunction with this system.

Sound and Heat Insulation.—Body and door panels are treated with various types of materials for sound and heat insulation, comprised of jute felt, asbestos felt and asphaltum board. Dashes are covered with felt, leather and insulating board. Toe and floor boards utilize similar materials and, in addition, celotex. To prevent noise the tool pan under the front seat is covered with jute and metal clips clamp the tools in position and prevent them from rattling. The fewest possible holes are put through the dash and floor boards. All instrument wires and tubes are usually passed through one or two rubber blocks in the dash.

BUS AND TRUCK

Air conditioning is being experimented with for bus bodies but in the meantime adequate ventilation is being provided. A large factor has been the elimination of exhaust gas heating. The modern transportation of tractors and trailers has grown considerably in the past year and has reached a point where a trailer is passed along in inter-state commerce to be hauled by different operators, comparable to the freight car in railway use. This calls for the need of a fifth wheel and coupling standardization, which is in prog-

ress. Due to the fact that trailers are usually equipped with either compressed air or vacuum brakes, one of the brake companies has developed a method to overcome the possibility of brake elimination due to a trailer with vacuum brakes being attached to a tractor with compressed air. The tractor is provided with one vacuum line besides its compressed air system. The standard relay valve on the trailer is provided with a small piston which is subjected to compressed air when the tractor brakes are applied. The relay valve is provided with a lever which can be shifted to one of two positions for operation with either compressed air or vacuum.

A combined rail and highway coach is provided by one manufacturer who places a flanged guide wheel in front of and behind each of the four rubber-tired wheels. Raising the guide wheels above the level of the rails and driving off, allows operation over the highway. The raising or lowering of the guide wheels can be accomplished in a few minutes. Used as a truck, there are great possibilities in the field of store-door delivery for the railways. A rail car has been built of stainless steel which is also used in the fabrication of the trucks, each of which have six pneumatic tired wheels. The engine and generator are located on one truck with the motor and driving mechanism on the other, thereby isolating all power plant vibration from the body.

NAVAL ARCHITECTURE AND MARINE ENGINEERING

BY H. H. BROWN

EDITOR, *Marine Engineering and Shipping Age*

SHIPBUILDING

Combination Passenger and Cargo Ships.—As the practical application of naval architecture and marine engineering depends upon the activities in shipping and shipbuilding, the nature of the work required in this particular branch of engineering at

any time depends upon the type of ship which, for the moment, is in demand. For the past three years American shipbuilders have been actively engaged in the construction of a fleet of relatively large and fast combination passenger and cargo ships for overseas service, and the problems re-

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quiring solution by the naval architects and marine engineers have been chiefly those involved in this class of construction. Thirty-one vessels of this type have so far been built to meet the requirements of the mail contract provisions of the Merchant Marine Act of 1928. At the close of the fiscal year 1932 the number of ocean mail contracts in force totaled 44, with positive or conditional requirements for the construction of 69 new vessels (including five completely rebuilt vessels) and betterments or substitutions affecting 57 vessels. The cost of the new vessels is estimated by the U. S. Shipping Board at about \$300,000,000, and of the betterments \$22,300,000. With the completion early in 1933 of the 31 vessels contracted for since the passage of the Merchant Marine Act of 1928 there remains a substantial program of construction of fast combination passenger and cargo ships, of a type similar to those already built, to be carried out during the next ten years. Developments in naval architecture and marine engineering, therefore, will continue to be made along the lines established during the past three years in the construction of the first modern vessels for our overseas trade.

Temporary Standstill in Building.—

As the further shipbuilding requirements of the ocean mail contracts will not have to be met for some time to come, the shipbuilding industry in the United States faces a period of inactivity during the coming months. This period of inactivity is aggravated by the continued world-wide depression in shipping, and the consequent laying up of 15,000,000 gross tons, or 20 per cent, of the world's merchant fleet. As a result, no new contracts for seagoing merchant vessels were placed in American shipyards in 1932 and no orders for new vessels were in sight at the beginning of 1933. For the first time in many years, production of merchant vessels in American shipyards dropped below 200,000 gross tons in 1932, and on Jan. 1, 1933, the merchant work in hand totaled only 62,361 gross tons. With the exception of 97,400 tons of naval vessels under construction at the be-

ginning of 1933, most of which are scheduled for delivery during the current year, the shipbuilding activities of the country are rapidly coming to a temporary standstill, leaving only about 10,000 employees actually engaged in the construction of merchant or naval vessels.

MODERNIZATION OF SHIPS

Increase in Repair Work.—To offset partially the lack of work in shipbuilding, however, there has been an appreciable increase in the volume of ship repair work during the latter part of 1932, due to a slight but steady improvement in shipping during this period. Because of the decline in shipping during the past two years, repairs to vessels have been neglected and even ordinary maintenance repairs postponed, while many vessels have been laid up for lack of cargoes. With the upward trend in shipping, which is already being felt, this repair work can no longer be neglected or postponed. Ship repair work, therefore, will be likely to predominate in the shipyard activities during the coming year.

Reconditioning for Speed.—With a considerable volume of repair work imminent, naval architects and marine engineers have a further problem to consider and that is of so reconditioning and modernizing existing vessels that their earnings can be increased. As most of the vessels constituting our seagoing fleets were built during the war and were designed for speeds of from 10 to 11 knots, they are immediately outclassed by the modern vessels being built by our foreign competitors which have speeds of from 13 to 15 knots. In most cases, therefore, the first requirement in modernization is for an increase in speed. This means either an increase in power or a decrease in resistance, or a combination of both.

Hull Remodelling.—Changes in the hull to reduce the resistance of a ship depend entirely upon the underwater form and type of construction of the vessel. Model experiments will point the way to the solution of this problem. Generally, however, this work involves the lengthening of the under-

water body of the ship either forward or aft, fining the lines of the ship, streamlining the stern frame, rudder post and rudder and the installation of efficient propellers.

Boiler Performance.—Additional power can be obtained in many steamships without going to the expense of a new power plant by improving the conditions surrounding the combustion of the fuel in the existing boilers and installing new condenser equipment to obtain a higher vacuum. Improved performance of the boiler plant can often be obtained by changes in the feed-water heating systems, installation of means for preheating the air for combustion and replacement or rearrangement of the oil-burning equipment.

Propeller Efficiency.—The possibilities of so reconditioning the propelling machinery that additional power can be developed by the existing plant depends upon the type of machinery. Increasing the vacuum is usually the first step, and the installation of new and more efficient propellers the second. If the ship is propelled by reciprocating engines, a marked improvement in economy and efficiency can be obtained by the use of poppet valves and means for reheating the steam in the receivers. Additional power with this type of machinery can be obtained without increasing the fuel consumption by the installation of an exhaust steam turbine whereby the steam is expanded to a lower pressure than is possible in the low-pressure cylinder of the reciprocating engine. With a vessel driven by geared turbines increased power is possible by changing the nozzles at the high-pressure end of the turbine and substitution of new gears to accommodate the new speed relations between the turbine and propeller. In the case of a motorship increased power can be obtained by the installation of supercharging apparatus and the economy of the vessel improved by the installation of exhaust-gas boilers for supplying steam for driving the auxiliary machinery and for heating.

Passenger Accommodation.—The possibilities of improving the economy and efficiency of a vessel by recondi-

tioning or modernizing are not confined solely to the question of power and resistance, however, as when the speed of a vessel is stepped up it is frequently desirable to add limited passenger accommodations, or, if passenger accommodations previously existed, to increase the extent of these accommodations, as the faster ship is likely to become a more important factor in the passenger-carrying trade. The day of the tramp or strictly cargo ship is over and to meet the new requirements of the liner sailing on fixed schedules over established routes more diversified means of revenue are essential.

Refrigeration and Ventilation.—Besides the addition of limited passenger accommodations, there are also possibilities of added profits, from the installation of refrigerating or ventilating equipment for the carrying of perishable or semi-perishable cargoes, or from changes in the cargo-handling facilities to handle special types of cargoes more efficiently.

Requirements to Meet Competition.—With 90 per cent of the American merchant marine rapidly becoming obsolete and with the Government giving financial aid only to fast mail ships, the modernization of existing tonnage has become a matter of vital importance in meeting the competition of the modern, and more efficient, foreign ships on the high seas. Where present earnings, without government aid, do not justify the construction of new vessels, the relatively small expenditures for modernization offer a means for increasing the earning power of existing vessels which cannot be overlooked. It is at least a temporary means of meeting the demand for higher speeds in transportation at sea and quicker turn-arounds in port.

SHIPBUILDING MATERIALS

Steel and Iron.—During the past year investigations have been in progress by shipbuilders, steel makers, the Navy Department and the American Bureau of Shipping to develop a better high tensile steel for ship hull construction, that will be readily adaptable to welding. At the same

time an investigation is being made as to the possibilities of using high tensile alloy wrought iron in place of high tensile steel plates, shapes, and rivets for welded hull construction. As wrought iron is inherently more readily adaptable to welding, the high tensile alloy wrought iron may prove even more satisfactory than high tensile steel for purposes where welding is employed. An investigation has also been undertaken by the Navy Department to determine the most satisfactory range of chemical composition for high tensile manganese rivet steels. It is expected that this will result in more closely fixing the limits of carbon and manganese specified and the making of higher quality rivets having better and more uniform driving characteristics.

Glass.—All brands of laminated glass previously accepted by the Navy Department for shipboard use have been replaced by brands in which the thickness of the plastic sheet has been increased about 50 per cent. Tests have shown that this change makes the resistance of the glass satisfactory under a wider variety of causes of fracture.

Paint.—A radical adjustment has been made by the Navy Department in the formulation of coal-tar rosin anti-fouling paint used on ships. The proportion of coal tar to rosin has been decreased so as to overcome the softness of the film of the present paint. Preliminary tests show excellent results with coal-tar rosin anti-fouling paint applied to corrosion-resisting steel panels. This suggests the possibility of corrosion-resisting steel hull plating.

Corrosion Resistant.—The Navy Department has prepared a revised specification for corrosion-resisting steel rods, bars and forgings, and a separate specification for material for reforcing purposes only. The principal change in the revised specification is the use of standard corrosion specimens to show the degree of corrosion that will be permissible in the salt-spray test. The solution used for this test is being changed to 20 per cent sodium chloride instead of 4 per cent sea salt, which reduces the time

of test from 100 to 24 hours, saving time in inspection and deliveries. The Navy Department has also issued specifications for corrosion-resisting steel castings, corrosion-resisting steel gasoline stowage tanks, aluminum foil for insulating purposes, aluminum alloy floor plates, and revised specifications for aluminum and aluminum alloy.

RESEARCH

Steel Castings.—An extensive program of research into steel castings has been under way during the past year by the Shipping Board in cooperation with the naval research laboratory. It is expected that the results will insure improvement in steel foundry practice.

Welding.—Although numerous all-welded vessels of relatively small dimensions, including 19 Navy Yard craft up to 115 feet in length, are in successful use, experience has discouraged the welding of longitudinal seams of shell plating and other strength members of large ships. In order to determine the suitability of welding for shell plating the Navy Department has conducted an extensive series of large-scale experiments showing that, by the use of coated electrodes, welded seams can be made that are decidedly superior to those made by riveting. Bare-electrode welded seams were found unsuitable for the longitudinal seams of shell plating and other strength members of a ship in which the longitudinal stresses are of any great magnitude. The results show that with an electrode giving deposits having an elongation in 2 inches of 20 per cent, or more, and an ultimate tensile strength of 65,000 pounds per square inch, or more, suitable joints can be made having a longitudinal efficiency, an elongation, and a tightness superior to any riveted or bare-electrode joints now in use, and that the shell of a large ship having lapped seams and butts welded with such electrodes would be perfectly feasible at this stage of welding development. The results of this valuable investigation will undoubtedly encourage the wider adoption of welding in shipbuilding and

have an important influence upon the design of ships in the future.

Experimental Model Research.—In designing a new ship it is usual practice to run model experiments to determine the necessary propulsive characteristics. The ship is then built in accordance with the most satisfactory combination of lines and propeller determined by the model tests. Upon completion, standardization trials of the ship are held to obtain the actual speeds and powers. Comparison of ship trial data with model tests show discrepancies due to wind and current effects, course deviations and change of draft and trim in the case of the full-size ship which do not exist in the model tests. Analysis of trial data at the U. S. Experimental Model Basin during the past year have established that corrections for ship wind resistance are imperative if ship speeds and powers corresponding to standard conditions are to be derived from trial results, for use in comparison with the performance of sister ships or with model self-propulsion data. Satisfactory methods of calculating these corrections have been devised. The study of wind resistance has been supplemented by tests on models of the above-water portions of ships, the models having been towed inverted in the model basin at various angles to simulate varying directions of relative wind.

In ship trials one of the most important and most difficult measurements is the exact determination of the ship's speed relative to the surrounding water. The development of a pressure speed log for this purpose has been carried out by the staff of the U. S. Experimental Model Basin with excellent results, so that it is now being adopted by the largest

shipyards in the country for standardization trials of new ships.

Research work conducted at the U. S. Model Basin during the past year for the Shipping Board as a part of its engineering development program included an investigation of the effect of increased frictional resistance of moderate-speed cargo vessels due to bottom fouling, the latter being simulated by using rough and stippled paint on the models and also by using varying areas of wire mesh.

Comparative tests were also made of the effective horsepower for a vessel of 9600 tons displacement with a Maier-form bow and a vessel with a normal bow. It was found that the effective horsepower of the Maier-form is slightly less at speeds below $12\frac{1}{2}$ knots and above $17\frac{1}{2}$ knots, whereas in the region of $12\frac{1}{2}$ to $17\frac{1}{2}$ knots the effective horsepower of the Maier-form is 8 or 9 per cent greater than that of the normal form.

Propeller Cavitation.—After two years' study of propeller testing in the new water tunnel at the United States Experimental Model Basin there has been developed a formula, which will give, under any and all conditions, approximately the speed at which back cavitation becomes serious for any ordinary type of submerged propeller of good or bad design. As back cavitation can affect revolutions and power to an enormous extent, it is important to be able to determine at the time the design is made whether a propeller is in danger of back cavitation or not. The development of this formula, which is described by Captain E. E. Eggert, director of the Washington Model Basin, in a paper presented before the Society of Naval Architects and Marine Engineers in November, 1932, is an important contribution to the science of naval architecture.

XIX. ENGINEERING AND CONSTRUCTION

COMMERCIAL MARINE ENGINEERING

By A. H. JANSSON

EDITOR, *Marine Review*

PROGRESS IN AMERICAN MARITIME POWER

Shipbuilding Activity. — Notable progress has been made during 1932 in the rehabilitation of the United States as one of the leading maritime powers of the world. Activity in shipbuilding, so definitely fostered by the Merchant Marine act of 1928, has continued throughout the year to such purpose that 42 of the new vessels required under the mail contracts have been completed or launched. In addition, a total of 33 vessels under the mail contracts have been reconditioned and placed in service. This makes a total of 75 new and reconditioned vessels, already added or soon to be added to the service of the American merchant marine.

Mail Contract Requirements. — A survey of mail contracts, corrected to Oct. 15, 1932, shows that there are now in force 43 such contracts calling for an aggregate annual total payment to these 43 services of \$25,213,628.80. In all, 124 ships, new and reconditioned, are specified under the terms of the mail contracts, 75 completed or nearing completion. The remaining 49 ships, new and reconditioned, must be delivered at intervals during a period of eight years. Of these, 28 new vessels are definitely required and nine new vessels are conditionally required; some reconstruction and betterment of old vessels may also be anticipated.

Engineering Achievement.—Never before has American commercial marine engineering reached the peak of achievement established during the past year. Two accomplishments stand out—completion and entry into transatlantic service of the turbine liner, *Manhattan*, the largest merchant vessel so far designed and built in the United States, and of the *Seatrain New York* and *Seatrain*

Havana, ocean-going vessels for carrying 100 loaded freight cars each.

TURBINE LINER MANHATTAN

The *Manhattan* is a cabin liner engaged in the service of the United States Lines between New York and Hamburg, and was delivered to the owner by the New York Shipbuilding Co. July 27. In her first transatlantic voyage, the *Manhattan* established a record as the world's fastest cabin liner, leaving her New York pier at 1:15 a.m., Aug. 11, she arrived at Cobb, Ireland at 9:55 p.m., Aug. 16. Her official time from Ambrose Channel light vessel to Roche's point, 2,878 miles, was five days, 14 hours and 25 minutes. She was acclaimed both here and abroad as an example of the highest type of modern marine engineering and shipbuilding. Her general characteristics may be outlined as follows: Length overall, 705 feet; length on water line, 685 feet; length between perpendiculars, 666 feet; beam molded, 86 feet; depth to C deck molded, 47 feet; depth to promenade deck, 75 feet; gross tonnage, 24,289; displacement at 30 feet 8¾ inches, 33,500 tons; deadweight, designed, on 30-foot draft, 12,000. Her 8-hour fuel consumption trial was carried out at an average speed of 22.22 knots, with the turbines developing 33,085 shaft horsepower at 125 revolutions per minute for each of the two propeller shafts. The fuel consumption for all purposes per shaft horsepower per hour of the main turbines alone was found to be 0.618 pound, an excellent showing. The propelling plant is rugged, commercially sound and is the equal in efficiency, if not superior, to any machinery in this class up to the present time. The main propulsion machinery is a twin screw installation, each propeller being driven by one set of single reduction geared turbine of the Parsons type built by the New York

Shipbuilding Co. The total normal output continuously at sea is 30,000 shaft horsepower to maintain a speed of 20 knots in moderate weather. Reserve power is provided for maintaining strict schedules under service conditions. A total of 34,500 shaft horsepower can be efficiently developed. There are two sets of triple series turbines, each set connected to a propeller shaft through single reduction gearing. Each set consists of a high pressure and intermediate pressure and a low pressure turbine. Steam conditions for the high pressure turbine inlet is 390 pounds per square inch, with a temperature of 650 degrees F. At a propeller speed of 125 revolutions per minute, the turbine speed is about 1,500 revolutions per minute, developing a normal power of 5,000 shaft horsepower in each unit or 15,000 horsepower for each shaft. Steam is generated by 6 Babcock & Wilcox express watertube boilers, each of 10,500 square feet of water heating surface, 2,507 square feet of superheating surface and 8,270 square feet of air heating surface, making a total for the six boilers of 63,000 square feet water heating surface, 15,042 square feet superheating surface and 49,242 square feet of air heating surface. The boilers are built for a working pressure of 400 pounds per square inch and at maximum power a total design steam temperature of 682 degrees F. The hull sets a high standing for safety. Subdivision goes beyond the regulations of the International Conference for safety of life at sea (1929), and also beyond the recommendations of the several bulkhead committees here and abroad. Another feature of safety is the arrangement of the machinery and boiler compartments, so that in case of damage the vessel may reach port safely from mid-ocean.

For a ship of the size of the *Manhattan*, the number of passengers carried in the three classes and the cargo cubic and deadweight are larger than usual. Also, in view of the deadweight provided, a sea speed of 20 knots is a fairly high rating. The load draft of 30 feet is within the limits set for all the principal ports

of the world. Accommodations are provided for 582 cabin passengers, 461 tourists, and 196 third, making a total passenger list of 1,239; the crew number 478, giving a total passenger and crew of 1,717. Spacious, comfortable and attractive accommodations are provided both in her beautiful public rooms and well arranged staterooms. In the *Manhattan* the world will recognize the high quality of American engineering and craftsmanship.

OCEAN-GOING FREIGHT CAR VESSELS

The other outstanding marine achievement during 1932 is rather in the design and construction of the hull and in the novelty of the service than in the machinery features. Two new and unique American built ocean-going freight vessels for transporting cargoes of loaded railroad freight cars entered service in October. These vessels, the *Seatrain New York* and the *Seatrain Havana*, were built by the Sun Shipbuilding & Dry Dock Co., Dorchester, Pa., for the Seatrain Lines, Inc., New York, with terminals at Hoboken, New Orleans and Havana. The *Seatrain New York* entered service, sailing from the terminal at Hoboken on Oct. 6 bound for Havana. The sistership, *Seatrain Havana*, sailed from the same terminal for Havana on Oct. 13. Each ship has a capacity for 100 loaded railroad freight cars, equivalent to a mile-long train. They are not of the carferry type in which the cars are run from the shore rails on to the vessels, but are well proportioned ocean-going vessels somewhat of the appearance of tankers. Loaded railroad cars are lifted from the shore rails by a giant crane on the dock and placed aboard the ship upon rails laid on four decks. These vessels now maintain a weekly service between New York, New Orleans and Havana. They are among the fastest cargo ships afloat, having a speed of 16½ knots. Modern steam engineering has been applied in the design and layout of the propelling and auxiliary machinery. The vessels are single screw and the propelling machinery is a De Laval compound turbine with double

reduction gears driving the propeller shaft, and is rated at 8,000 shaft horsepower at 105 revolutions per minute. At a 110 revolutions per minute the power developed is 8,800 shaft horsepower. At her sea trials the *Seatrain New York* attained a speed of 17.1 knots. The main turbine takes steam at 375 pounds per square inch gage-pressure and 233 degrees F. superheat. The turbine exhausts to a vacuum of 28½ inches. Speed of the high pressure turbine at the designed propeller speed of 105 revolutions is 4,685 revolutions per minute and the low pressure turbine 3,455 revolutions per minute. Complete turbine and gear units weigh 275,000 pounds. Steam is supplied by three Babcock & Wilcox watertube marine boilers of latest improved design with convection type superheaters. These boilers are oil burning and each has a heating surface of 5,564 square feet, and superheating surface of 1,044 square feet. The allowable working pressure is 400 pounds per square inch with a total temperature of approximately 700 degrees F.

The service of these vessels, carrying loaded freight cars from New York to Havana, is one of the most revolutionary changes in ocean freight transportation since the replacement of sail by steam. It is fair to say that no transportation event in recent years has aroused such widespread interest nor so much opposition and resentment on the part of old lines, long established transportation agencies, both ashore and afloat.

NEW UNITED FRUIT FLEET

During the year the splendid new fleet of the United Fruit Co. contracted for in August, 1930, has been practically completed and five of these vessels have entered service—the *Talamanca* and *Chiriqui*, built at Newport News Shipbuilding & Dry Dock Co., and *Antigua*, *Quirigua* and *Veragua*, built at the Fore River plant, Quincy, Mass., of the Bethlehem Shipbuilding Corp. The sixth ship, the *Peten*, is now nearing completion at Newport News Shipbuilding & Dry Dock Co. On her trials the *Talamanca* showed an average speed of 19.46 knots with

an average shaft horsepower of 11,150 at 129.5 revolutions per minute. The results obtained easily exceeded the contract guarantees for speed and power, and the fuel consumption was well below the guarantee. Throughout all the trials, the machinery, consisting of twin screw turbine electric drive, supplied by the General Electric Co., functioned perfectly. The average draft on the trials was about 20 feet, and the vessel is, therefore, able to maintain a speed well in excess of 18 knots at a service draft of a little over 24 feet. The trial speed gave a considerable margin over the guaranteed speed of 17½ knots. These vessels represent the highest standards and may be said to have no superiors in their class. Especially is this true of the refrigerating system and the propulsive machinery. Particular care has been taken to give comfortable living quarters for officers and crew. Individual staterooms are provided for each of the deck and engineer officers with practically all the conveniences of passenger staterooms for comfort in both hot and cold climates. Hull and machinery were built under special survey of the American bureau of shipping to its highest class "with freeboard." The principal dimensions and particulars are as follows: length overall, 446 feet and 9 inches; length between perpendiculars, 415 feet; beam molded, 60 feet; depth molded to upper deck, 34 feet 9 inches; maximum draft molded, 24 feet 9 inches; displacement at maximum draft, 11,345 tons; gross tonnage, 6,963; cargo capacity, 196,000 cubic feet; passenger accommodations, 113. Accommodations for passengers include features usually associated only with the largest passenger ships such as a permanent outdoor swimming pool and deck ballroom. Only first class passengers are carried. The main propelling machinery consists of two main turbine generators taking steam at 325 pounds at the throttle and 230 degrees F. superheat. These generators supply electric current to two main propulsion motors, one of which is fitted on each of the two propeller shafts. The propulsion motors each have a maximum

continuous rating of 4,200 kilowatts at 125 revolutions per minute. They are of the synchronous induction type.

OTHER NOTABLE SHIPS

Mariposa and Monterey.—Among other notable ships completed late in 1931 and in 1932 are the two Matson liners, *Mariposa* and *Monterey*. The *Mariposa* had her sea trials Dec. 10 and 11, 1931, and the *Monterey*, April 21 and 22, 1932. These magnificent vessels costing about \$8,000,000 each were built by the Bethlehem Shipbuilding Corp. at Quincy, Mass., for the Matson Navigation Co., San Francisco. Their principal particulars are 661 feet 6 $\frac{3}{8}$ inches in length overall, 605 feet in length between perpendiculars, 79 feet in molded beam, 82 feet 1 $\frac{1}{2}$ inches in extreme beam over "B" deck, draft molded to designed waterline, 28 feet, displacement to the same line, 26,141 tons, gross tonnage of the *Mariposa*, 18,017.35, cargo capacity, general 245,019 cubic feet, 34,629 cubic feet of refrigerated cargo space and 29,974 cubic feet of baggage, mail, etc. Passenger accommodations, first class, 475; second class, 229; making a total of passenger accommodations for 704 persons. The crew total is 359. Speed in service is 20.5 knots. These liners are now in service on the Oceanic line between San Francisco, Hawaii, South Sea Islands, New Zealand and Australia. In hull construction and machinery every requirement of the American bureau of shipping has been met and the vessels were constructed under this Bureau's special survey to its highest class. The hull is divided into 13 main compartments from bow to stern by 12 watertight bulkheads. Fuel oil tanks and other minor bulkheads give, practically, still more subdivision. Machinery of these vessels consists of high pressure, high temperature, watertube boilers, single reduction-gearred turbines and electric auxiliaries. The main propulsion machinery is a twin screw installation, designed for 22,000 shaft horsepower at 124 revolutions per minute. The boilers in 12 units are arranged in two fire-rooms, using forced draft and closed

stoke holes. The boilers are of Babcock & Wilcox cross drum marine type, fitted with interdeck superheaters, tubular airheaters, etc. The total water heating surface is 53,520 square feet, total superheating surface 5,352 square feet, and total air heating surface 32,112 square feet. Steam conditions at the superheat outlet are 375 pounds gage and 650 degrees F. total temperature. Each set of turbines consists of three units of Bethlehem-Parsons turbines in series arranged in separate casings around the single gear wheel. The single reduction gearing is of double helical type with a pitch diameter of the gear wheel of 156 inches and of the pinions 12 $\frac{1}{4}$ inches, with a net face of 56 inches.

Santa Rosa.—Another outstanding shipbuilding program has been carried out during 1932, the completion and entry into service of the *Santa Rosa*, first of four combination passenger and cargo liners for the Grace line, involving in the four ships a total expenditure of \$20,000,000. The *Santa Rosa* sailed from New York on Nov. 26 on her maiden voyage to Havana, Panama, Costa Rica, El Salvador, Guatemala, Mexico, California, Victoria, B. C., and Seattle. The *Santa Rosa* was built, and her three sisterships are now being built, by the Federal Shipbuilding and Dry Dock Co., Kearney, N. J., for the Panama Mail Steamship Co., a subsidiary of W. R. Grace & Co. The *Santa Rosa* was launched March 24 and the three sister ships were launched as follows: *Santa Paula*, June 11; *Santa Lucia*, Oct. 3, and *Santa Elena*, Nov. 30. These four new Grace liners have been designed and decorated with the view of much service in tropical waters. The *Santa Rosa* is a flush deck ship with complete superstructure and combined bridge and forecastle extending over four-fifths of the vessel's length. There are eight steel decks including the house top. A complete double bottom with floors on every frame is fitted from the fore peak bulkhead to the after peak bulkhead. There are ten transverse watertight bulkheads, all extending to the "B" deck, with the

exception of the fore peak bulkhead which extends one deck higher. These bulkheads subdivide the ship into eleven watertight compartments so that the ship will remain afloat even with any two adjacent compartments completely flooded. The principal characteristics are: length overall, 508 feet; length between perpendiculars 484 feet; beam molded, 72 feet; depth to "B" deck, 38 feet 11½ inches; load draft 26 feet 2½ inches; gross tonnage, 11,200; displacement, 16,500; number of propellers, 2; contract speed, 18.5 knots. The main propelling machinery consists of two sets of cross compound turbines each normally developing 6,000 shaft horsepower and each connected to a propeller shaft by double reduction gearing. The turbines are designed for a normal steam pressure of 375 pounds per square inch, and a total temperature of 725 degrees F. at the main valve and a vacuum of 28½ inches. Under these conditions, and with the ship at load draft, the propeller revolutions will be about 95 per minute with the high pressure turbine operating at 4,500 revolutions per minute and the low pressure turbine at 3,530 revolutions per minute. The machinery was designed and built by the General Electric Co. The passenger accommodations are unusually attractive and the quality of material and workmanship is evident throughout.

Saint John and Acadia.—A number of other fine vessels were completed during 1932 among which may be mentioned the *Saint John* and *Acadia* for the Eastern Steamship lines, built by the Newport News Shipbuilding & Dry Dock Co. at a cost of \$3,500,000 each. These vessels are twin screw, turbine reduction gear, passenger and freight steamships for service between the United States and Canada's maritime provinces. The speed on trial was well in excess of 21 knots at 183.3 revolutions. Some of the general particulars are: length overall, 402 feet 11 inches; length between perpendiculars, 397 feet; beam molded, 61 feet; depth molded to upper deck, 29 feet 9 inches; draft, loaded 20 feet 1½ inches; displacement,

6,811 tons; gross tonnage, 6,185; shaft horsepower designed at 168 revolutions per minute; 9,500; maximum shaft horsepower, 11,400 at 178 revolutions per minute. The deadweight at maximum load draft is 2,494 tons. Accommodations are provided for 667 first class passengers and 87 in berth travel class. The accommodations are of the highest order and include 14 de luxe suites, and a number of special staterooms.

Colombia and Haiti.—Two vessels have also been completed by the Newport News Shipbuilding & Dry Dock Co. for the Colombian line. The first of these two vessels, the *Colombia*, sailed on her maiden voyage from New York on Nov. 24. Ports of call include Port au Prince, Haiti, Kingston, Jamaica; Cristobal, Canal Zone, Barranquilla, and Cartagena, Colombia; and Panama. The time to Cristobal is eight days. A sistership, the *Haiti*, was scheduled to enter service during December, 1932. These vessels have an overall length of 404 feet 5 inches, beam of 57 feet 5 inches, a depth of 31 feet 6 inches, a draft of 23 feet 6 inches, and a gross tonnage of approximately 5,400. They are single screw, three-deck type, with long bridge erections, forecastle and poop, with an elliptical stern and straight stem. The propelling machinery consists of one set of Newport News impulse type turbines comprising one high pressure, one intermediate pressure and one low pressure turbine in series, each driving a separate pinion of a single reduction gear. The machinery is rated at 6,500 shaft horsepower, and the speed is over 16 knots. Four oil burning watertube boilers supply steam at 400 pounds per square inch pressure with 230 degrees superheat. Practically all of the auxiliary machinery is electrically driven. The *Colombia* has luxurious accommodations for 120 first and 24 tourist class passengers, all large, well ventilated outside rooms.

SOCIETY OF NAVAL ARCHITECTS AND MARINE ENGINEERS

Annual Meeting.—The fortieth annual meeting of the Society of Naval Architects and Marine Engineers in

New York, Nov. 17 and 18, at which 16 technical papers were presented, brought out vividly the increasingly important part now being taken by American engineers and naval architects in the advancement of marine engineering and shipbuilding. Much information was presented which clearly demonstrates that the progress in ship design and machinery for ship propulsion has been so rapid in the last few years that older vessels are now virtually obsolete. The shipbuilder is prepared to guarantee all-round efficiencies which were unheard of as recently as four years ago.

Steam Machinery.—This progress has been accomplished, both in the use of steam machinery and in the application of the diesel. In steam for instance an anticipated performance of a modern installation of 6,000 horsepower giving a fuel consumption of .518 pound of fuel per shaft horsepower per hour for all purposes was universally accepted as dependable and conservative.

Diesel Engine.—On the other hand, those leaning toward the superiority of the diesel engine for propulsive power, claim that though the spread in fuel consumption between steam and diesel has been greatly reduced there are latent, and in several recent installations, to some extent, developed possibilities of further economies in using diesel power. Particular reference was made to new developments in utilizing much of the waste heat.

Utilizing Waste Heat.—Along this line a suggestion was made that for a two-cycle, single acting, mechanical injection diesel engine consuming .40 pound of fuel per brake horsepower per hour, with a heat value in the fuel

of 19,000 B. t. u. per pound, the heat balance, with possible waste heat recovery, would give a thermal efficiency of 62.6 per cent, if all the heat in the cooling water is recovered and none from the exhaust; and that a thermal efficiency of 79 per cent is possible if all the heat in the cooling water and one-half of the heat in the exhaust is recovered. The thermal efficiency of the very efficient steam plant mentioned above giving a consumption of .518 of fuel per horsepower per hour is 25.85 per cent. But those who favor steam counter with the question of how this heat is to be used, were any such extraordinary recovery possible under operating conditions on shipboard.

Conflicting Propulsion Claims.—Modern steam proponents claim that this type of propulsion equipment is highly economical and thoroughly reliable and that the predominance of this type of machinery in the United States is due to sound engineering and a careful analysis of all facts. They also claim that machinery weights and costs are less for steam than for diesel. The diesel proponents on the other hand claim that recent developments in building marine diesel engines have altered the situation in regard to both of these items and now claim for the diesel not only lower fuel consumption and higher thermal efficiency, but also the additional advantage of ability to make long voyages without refueling, or a greater cargo carrying capacity if it is advisable to refuel on the voyage.

As one of the papers presented at the meeting stated, in the final analysis the aim is to install the type of machinery that will have the lowest net cost and will bring the greatest return on the investment.

XIX. ENGINEERING AND CONSTRUCTION

MATERIALS OF ENGINEERING AND CONSTRUCTION

By C. LAURENCE WARWICK

SECRETARY-TREASURER, AMERICAN SOCIETY FOR TESTING MATERIALS
and

PAUL J. SMITH

TECHNICAL ASSISTANT, AMERICAN SOCIETY FOR TESTING MATERIALS

RESEARCH

Significant Progress.—Continued research is essential to progress since new knowledge and new developments are the life of economic prosperity. It is, therefore, significant to record in these times of industrial stress no substantial curtailment of research or of new developments in the engineering materials field. In many cases it has, of course, been necessary to set aside studies appropriate to a period of business expansion and to devote available research funds to a study of problems more beneficial in times of depression, such as the production of present materials more economically, or the development of new materials for which a demand exists or can be created. The latter has proved, especially in the chemical industry, to be an excellent method of stimulating business activity through research. That 1932 is not very far behind other years in the progress of knowledge of materials is evident from some of the developments recorded herein.

Resistance of Materials to Deterioration.—Merely to state this problem is to show immediately its great industrial significance. It is, moreover, one of great scientific interest, and the engineer and industrialist must look to the physical chemist for aid in combating many of the processes of deterioration. The fundamentals of this problem were set forth in a brilliant lecture by Dr. Hugh S. Taylor before the American Society for Testing Materials (The Edgar Marburg Lecture, *Proceedings*, vol. 32, II, p. 9, 1932), who discusses the fundamental reactions in deterioration, such as oxidizing processes involving oxygen, steam and other less universal oxidizing agents, as well

as reactions of polymerization, decomposition and depolymerization. He discusses the influence of such important factors as heat and light, ionization, pressure and accelerating agents in influencing the speed of these processes and shows that the problem of their control is the problem of control of the speed of chemical reactions. Unquestionably this is one of the major industrial and economic problems of the day and warrants systematic and scientific investigation.

METALS

Gases and Inclusions in Metals.—A symposium before the American Institute of Mining and Metallurgical Engineers (*Transactions*, vol. 101, 1932), describing studies of the solubility, absorption and influence of gases in metals, methods of determining gases and of their extraction from solid and liquid metals, as well as the effect of inclusions, has thrown further light on the nature of metal-gas systems (see THE AMERICAN YEAR BOOK, 1928, p. 630). It is shown that the amount of gas which may be held in a metal so that it follows either the rules for aqueous solutions or the mass-law equation is considerably outweighed in most metallurgical reactions by that held in gas-metal systems of entirely different structures and concerning which little experimental evidence is available. The amounts of oxygen and nitrogen found in normally clean, sound steel will vary from a few thousandths to a few hundredths of one per cent, while the amount of hydrogen usually is negligible. Numerous observations of cast steel have revealed a striking and consistent relation between the ductility of the steel and the character and distribution of inclusions present,

other factors being equal. If the inclusions are precipitated before or at the beginning of solidification, the steel will be ductile; if they precipitate as a eutectic, the ductility will be low.

Embrittlement.—Need for quantitative data concerning the “embrittlement” of hot-galvanized structural steel—widely used in the construction of transmission towers—has been met by an extensive study (Am. Soc. Testing Mats., *Proceedings*, vol. 32, I, p. 124; II, p. 293, 1932), which has shown that such embrittlement is caused by cold-working of the metal at punched bolt and rivet holes and at other points of stress concentration such as notches and cold bends, and by heating to the temperatures incident to galvanizing rather than by impregnation of the zinc. Punching is the principal factor; pickling, galvanizing and to some degree the nature of the steel play secondary rôles. Avoidance of punching in the heavy structural sections is necessary and generally sufficient to avoid injurious embrittlement difficulties in present-day commercial galvanized steel. From the results of this study the American Society for Testing Materials (*Proceedings*, vol. 32, I, p. 615, 1932) has prepared a guide for safeguarding against such injurious embrittlement and recommended a practice for detecting embrittlement of hot-galvanized steel angles.

Fatigue and Corrosion.—Fatigue of Metals.—Designing engineers today are giving more and more attention to the failure of metals and alloys under repeated stress, since spreading fatigue cracks constitute the majority of failures in machine parts (see Report of Research Committee on Fatigue of Metals, Am. Soc. Testing Mats., *Proceedings*, vol. 32, I, p. 138, 1932). On account of the high endurance limits, 110,000 lbs. per sq. in. or over, obtainable with heat-treated and alloy steels, considerable attention has been given to these materials (see THE AMERICAN YEAR BOOK, 1926, p. 828; 1927, p. 578). Under repeated stress in the presence of corrosion, however, the steels fall from their high plane. While the fa-

tigue properties of certain non-ferrous metals have been rather thoroughly studied (see THE AMERICAN YEAR BOOK, 1929, p. 624; 1931, p. 666), relatively little attention has been paid to the endurance properties of copper and its alloys, no reliable data being available on many commercial compositions and tempers. In a correlation of all available fatigue data on tough-pitch copper, brasses and nickel brasses, bronzes and special copper alloys, H. W. Gillett (*Metals and Alloys*, September, October, November, December, 1932) points out their potential possibilities where corrosion-fatigue is concerned due to excellent corrosion-resistance, but shows that much remains to be done before the properties of copper and its engineering alloys under repeated stress, with or without corrosion, are thoroughly understood.

Studies of the effect of surface alterations resulting from the application and presence of hot-dipped galvanized and electroplated zinc coatings on the endurance properties of open-hearth iron and 0.45-per-cent and 0.72-per-cent carbon steel by fatigue tests, as reported by W. H. Swanger and R. D. France (Am. Soc. Testing Mats., *Proceedings*, vol. 32, II, p. 430, 1932), indicate that hot-dip galvanized coatings reduced the endurance limit from that of uncoated materials by as much as 40 per cent. The endurance limits of the zinc electroplated specimens, however, were equal to or greater than those of the uncoated specimens. The difference in the effects of the two types of coating is believed to be caused by the differences in the nature of the bond between the zinc and the steel, and the structure and hardness of the two coatings. The deleterious effect of pickling, previous to plating, upon the corrosion-fatigue limit of steel due to embrittlement of the surface by the hydrogen absorbed, was shown by W. E. Harvey (*Metals and Alloys*, March, 1932) who advocates further study of methods of eliminating a pickling bath for some plating purposes.

Nitriding.—In furthering the commercial development of the nitriding process (see THE AMERICAN YEAR

BOOK, 1929, p. 624) studies have been made of short-time nitriding methods. Improved methods of accelerating the nitriding reaction, described by John J. Egan (Am. Soc. Steel Treating, *Transactions*, vol. XIX, April, 1932, p. 481), include a duplex cyanide treatment, the use of ammonia and nitric oxide, ammonia with nitrogen-containing compounds, and activated sand as packing material. Based on the efficiency of the methods as measured by the depth of case produced in a given time, the use of ammonia nitric-oxide mixture, capable of producing cases 0.01 in. in depth within four hours, should fit readily into routine nitriding since it involves no great departure from current practice except the proper pre-mixing of the gases and the use of copper gauze or chips as a catalyst. The rôle of nickel in the nitriding process (H. J. French and V. O. Homerberg, Am. Soc. Steel Treating, *Transactions*, vol. XX, December, 1932, p. 481) is found principally in its strengthening and toughening effects upon the nitride case, its strengthening and hardening effects upon the core by which to provide better support to the case, and its development of dispersion hardening phenomena in steels containing appreciable proportions of aluminum by which an automatic increase in core strength and elastic properties is obtained during the nitriding cycle.

New Rustless Iron Alloy.—A new iron alloy, composition 0.10 per cent maximum carbon and about 16 per cent chromium, 1 per cent silicon, 1 per cent copper and 0.40 per cent manganese (*Metals and Alloys*, February, 1932), represents a new departure in the field of rustless iron alloys in that the alloy depends for its corrosion-resisting properties not on a maximum content of chromium but rather on a minimum content with other alloying elements so selected as to provide resistance under many conditions of corrosive attack. In manufacture, the casting, forging and working properties present, it is claimed, the least difficulties of any known stainless iron. The alloy lends itself readily to soldering and

brazing and can be welded without tendency to grain growth inherent in the straight chromium alloys. It is particularly adapted for rivets and has been used successfully for ornamental architectural work. In sheet form it exhibits a tensile strength of 70,000 to 80,000 lbs. per sq. in. and in bar stock as high as 130,000 lbs. per sq. in. The alloy shows greatest resistance to corrosion and oxidation in the heat-treated condition.

Effect of Temperature on Metals.

—Supplementing the symposium held last year (see THE AMERICAN YEAR BOOK, 1931, p. 666) a coöperative study of impact and magnetic properties and the structural stability of the 18-per-cent chromium, 8-per-cent nickel, stainless steels with carbon contents of 0.06 and 0.085 per cent under different heat treatments is reported by the Joint A. S. M. E.-A. S. T. M. Research Committee (Am. Soc. Testing Mats., *Proceedings*, vol. 32, I, p. 138, 1932). The tensile properties as measured in "short-time" tests of medium-manganese steel at 900° F., cast nickel-chromium-iron alloys containing about 0.5 per cent carbon, 35 per cent chromium and from 10 to 45 per cent nickel, at a temperature of 1,550° F., and three tungsten-chromium-vanadium steels and four molybdenum-chromium-vanadium steels at temperatures of 850 and 1,000° F. are reported by William Kahlbaum and Louis Jordan (Bureau of Standards, *Research Paper*, no. 474, vol. 9, September, 1932). These authors also report creep tests at temperatures between 750 and 1,100° F. on two tungsten-chromium-vanadium and a molybdenum-chromium-vanadium steel (Bureau of Standards, *Research Paper*, no. 481, vol. 9, September, 1932). The importance of recrystallization temperature and grain size of a metal in influencing its creep characteristics has been demonstrated by C. L. Clark and A. E. White (Am. Soc. Testing Mats. *Proceedings*, vol. 32, II, p. 492, 1932) in reporting long-time creep tests on copper-zinc, copper-zinc-tin and nickel-copper alloys. At temperatures below the lowest temperature of recrystallization, stresses of defi-

nite magnitude are required to produce continuous creep, while at temperatures above this apparently critical temperature continuous creep will occur under any stress regardless of its magnitude. The authors conclude further that at temperatures below the lowest recrystallization temperature, fine-grained materials offer the greater resistance to creep, while at temperatures above, the coarse-grained material is superior.

Steel Castings.—Continuing the compilation of engineering data on cast metals, inaugurated last year with a survey of malleable castings (see *THE AMERICAN YEAR BOOK*, 1931, p. 668), the American Foundrymen's Association and the American Society for Testing Materials have published a comprehensive review of the physical and mechanical properties of carbon- and alloy-steel castings (*Am. Soc. Testing Mats., Proceedings*, vol. 32, II, p. 43, 1932). The problems and practices in heat-treating steel castings and many vital factors influencing design, important in the success or failure of a casting in service, were revealed. Purchase requirements as reflected in specifications were analyzed. The complex characteristics of many alloy steels and their unique response to heat treatments were emphasized in pointing out the industrial uses of steel castings which will be enhanced and furthered by continued research.

Volume Changes of Cast Iron.—The conclusion of a most important research study of the volume changes of cast-iron castings during cooling in the liquid state and during subsequent solidification is reported by C. M. Saeger, Jr., and E. J. Ash (*Am. Foundrymen's Assoc., Transactions*, vol. 40, 1932). Studies of volume changes occurring in eight types of cast irons, from gray iron to white iron, during cooling from the liquid state to room temperature show the coefficient of volume shrinkage in the liquid state to be 0.011 per cent per deg. cent. The volume change during solidification varied from an expansion of 1.65 per cent in a gray iron to a contraction of 5.85 per cent in a low-carbon low-silicon iron. Guided

by these studies, a shop method for determining volume changes in cast iron during casting, was developed. The apparatus and methods used for determining the specific volume-temperature relations of metals have been described in detail (*Bureau of Standards, Research Paper*, no. 399, vol. 8, January, 1932).

Copper Ingot Metals.—Following a compilation made in 1930 by the Non-Ferrous Ingot Metal Institute (see *THE AMERICAN YEAR BOOK*, 1930, p. 635) indicating that the 600 copper-base alloy compositions used commercially might be reduced to 20, H. B. Gardner and C. M. Saeger, Jr. (*Am. Soc. Testing Mats., Proceedings*, vol. 32, II, p. 517, 1932) report a study of the physical properties of one of these alloys (a red brass, 85 per cent copper and 5 per cent each of zinc, tin and lead) as affected by pouring temperatures and form of test bar. Pouring temperature was found to have a marked influence. Studies are being continued to determine the optimum number of compositions and to develop equitable standards for quality and tests.

Bearing Metals.—The first phase of a general study of Babbitt metals at the Bureau of Standards aimed toward reduction of tin and antimony contents, "strategic metals" in view of potential military demands of these metals, was reported by H. K. Herschman and J. L. Basil (*Am. Soc. Testing Mats., Proceedings*, vol. 32, II, p. 536, 1932). Hardness, compression and impact tests at temperatures from 70 to 400° F. and wear tests at 70° F. on two tin-base, seven lead-base and one cadmium-base white metal bearing alloys showed the tin-base alloy to have a lower wear rate at 70° F., and in most cases higher impact resistance at higher temperatures but lower resistance to pounding at higher temperatures. Service tests of bearings on trucks also indicated that the tin-base alloys were superior in their wear resistance to the lead-base alloys. The mechanical properties of the lead-antimony-tin alloys were generally higher as the tin content was increased, although no one of the bearing alloys was found to excel in

all of the mechanical properties considered as indicating the suitability of a bearing metal for service. A correlation of available data on the tin- and lead-base bearing metals has been prepared by L. E. Grant (*Metals and Alloys*, June and July, 1932).

NON-METALS

Cement.—The question of whether the temperature of cement at the time of use (generated during manufacture and occasionally as high as 350° F.) affects the properties of the resulting concrete has been a matter of concern to many engineers, especially in highway work and in mass concrete structures. In this connection a valuable digest of all known tests on the effects of the use of hot cement in making concrete has been reported (Am. Soc. Testing Mats., *Proceedings*, vol. 32, I, p. 298, 1932). These data seem to indicate that the temperature at the time of use of portland cement of normal properties appears to be a minor factor in producing high temperatures of freshly mixed concrete under usual job conditions, on account of the low specific heat of portland cement and of its relatively small quantity in the usual mix, and that instead of the temperatures, specific heats and weights of all materials entering into the concrete are the determining factors.

The importance of temperatures developed in mass concrete and their effects on strength and other properties (see THE AMERICAN YEAR BOOK, 1931, p. 699) has also been recognized. Volume changes and cracking of mass concrete are generally outward evidences of inward disturbance caused by induced stresses, necessarily large in massive structures, due probably to heat evolved during the hardening process. In connection with the construction of the Hoover Dam (*Engineering News-Record*, November 10, 1932) a comprehensive research investigation of portland cements and concrete has been initiated in an attempt to produce cements having low heats of hydration that will result in concrete of greatly improved thermal properties, increased durability and adequate strength.

Mineral Aggregates.—The correlation and analysis of existing data to further our fundamental knowledge of the properties and uses of mineral aggregates and the coordination of present and future researches in mineral aggregates, the need for which has been evidenced for several years (see THE AMERICAN YEAR BOOK, 1929, p. 628), is beginning to be realized. The Highway Research Board of the National Research Council is engaged in making a comprehensive survey of the whole subject and has reported a summary of a nation-wide review of tests for durability of concrete, considered one of the most important and urgent problems before concrete engineers today (*Proceedings*, Part I, 11th Annual Meeting, December, 1931). This preliminary study indicates that the extent and rate of disintegration probably depend upon the amount and characteristics of the unsound material in the concrete. Failures of concrete when due to coarse aggregate result either from disintegration of the aggregate without much volume change or the aggregate undergoes sufficient change in volume to disrupt the concrete. Data on failures of concrete caused by unsound fine aggregates are, however, somewhat conflicting and inconclusive. All investigators agree that the freezing and thawing test is a measure of durability; also that the quality of the mortar or cement paste has probably the most important influence on the durability, while there is a conflict of opinion as to the value of the sodium sulfate-soundness test, which indicates that further investigations of soundness and durability are needed.

Concrete-Mix Design.—A simplified procedure developed by Inge Lyse (Am. Soc. Testing Mats., *Proceedings*, vol. 32, II, p. 629, 1932) for designing concrete mixes, which has as its fundamental basis a lineal increase in comprehensive strength with the water-cement ratio by weight, is applicable for all practical mixes with fairly accurate results. Test data show that the consistency of concrete remains nearly constant regardless of the richness of mix if the type and

gradation of the aggregates and the water content per unit of fresh concrete remain constant. Series of tests made on nine different aggregates and five brands of cement showed that the cement is the strength-giving constituent in concrete and that above a minimum number of cement particles necessary to give workability and binding strength to the concrete, the strength of the concrete increases in direct proportion to the increase in number of cement particles in a unit of water. The importance of the tests rests in the conclusion that in designing concrete mixes of equal consistency, the water content per cubic yard of concrete and the type and gradation of aggregates should be maintained the same and the change in richness of the mix should be accomplished by substituting approximately 0.85 lb. of aggregates for each pound decrease in cement content, or *vice versa*, 0.85 being approximately the ratio of specific gravities of the aggregate and cement.

Waterproofing Concrete.—Studies of integral and surface waterproofings for concrete by C. H. Jumper (Bureau of Standards, *Research Paper*, no. 394, vol. 7, December, 1931) have thrown some light on the relative values of 100 commercial compounds in making concrete impermeable, a question of paramount importance to the concrete industry (see *THE AMERICAN YEAR BOOK*, 1931, p. 670). Fifty integral waterproofing materials were incorporated into a 1:3:6 concrete (a lean mix adopted to simulate the segregated portion of concrete through which leakage generally occurs), subjected to a water pressure of 20 lbs. per sq. in. for one year and their permeability noted in comparison with plain concrete of the same quality tested in a similar manner. Fifty surface waterproofing materials were applied to 3-in. by 6-in. concrete cylinders and their absorption determined, after immersion in water, at regular intervals up to one year. This study demonstrated the efficiency of bituminous emulsions. The permeability of concrete was not reduced by the addition of such ma-

terials as cellulose and wax, or by the addition of materials containing uncombined fatty acids, fluosilicate, naphthalene, vaseline, butyl stearate, or coal tar. Coatings composed largely of inorganic pastes, such as iron oxide, cement, etc., gave poor results. Certain transparent coatings, such as linseed oil, tung oil and varnish, gave good results.

Reinforced Concrete Column Tests.

—Significant and new knowledge concerning concrete-column behavior under long-continued loading has resulted from the extensive research studies during the past two years at the laboratories of the University of Illinois and Lehigh University under the auspices of the American Concrete Institute (see *THE AMERICAN YEAR BOOK*, 1931, p. 670). The present tests (*Am. Concrete Inst., Journal*, vol. 3, January, 1932, pp. 279, 317), covering a wide variation in strengths of concrete, kind and amount of both vertical and spiral reinforcing, size and design of columns, and age and storage conditions, demonstrate that the ultimate column strength is governed in all cases by a simple general law. It is clear that spiral reinforcement contributes much more strength to a column that has usually been utilized, and that this strength may be closely estimated. The tests show that weight-for-weight spiral reinforcing is from one to two times as effective in increasing ultimate column strength as is the longitudinal steel. Since a few tests are yet to be completed, a subsequent report will be made in which the principal results of the investigation will be interpreted and recommendations made as to design formulas for columns.

Cast Stone.—Cast stone, the result of the engineer's effort to improve on natural building stone, is being perfected to meet the needs of modern engineering construction. A study of the physical properties of cast stone to obtain data on which to base specifications is described by John Tucker, Jr., G. W. Walker and J. A. Swenson (*Am. Concrete Inst., Journal*, vol. 3, December, 1931, p. 243; also Bureau of Standards, *Research Paper*, no. 389, vol. 7, December, 1931).

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Since the essential requirements of cast stone are appearance, freedom from discoloration and durability, studies were made of compressive strength, absorption and freezing-and-thawing to determine whether a correlation exists between durability when exposed to weathering and laboratory tests. The authors conclude that a minimum compressive strength requirement of 5,000 lbs. per sq. in., a maximum 48-hour absorption of 8 per cent, and a maximum boiling absorption of 11 per cent would eliminate material with poor weathering qualities. There is not sufficient correlation of the resistance to freezing and thawing of the specimens with their strength and porosity to indicate that failure is due in any large measure to destruction by internal ice pressure.

Rubber.—The improvements in the manufacture of rubber, its vulcanization, compounding, etc., due to advances in rubber technology, with resulting development of remarkable properties of this material, are described in a *symposium* (Am. Soc. Testing Mats., Cleveland Regional Meeting, March, 1932). The many engineering applications of rubber are revealed with respect to its special properties of resistance to corrosion and contamination, to acids, water and gases, its electrical characteristics and flexibility, uses in the manufacture of adhesives, and the diversity of properties obtainable by combinations of rubber with textiles and other materials. The importance of shock and vibration properties of rubber and suitable testing methods are considered in view of the increasing applications in the automotive industry.

Coal.—An extensive collection and correlation of facts and data on the composition, properties and uses of North American coals was presented in a *symposium* (Am. Inst. Mining and Metallurgical Engrs., *Transactions*, vol. 101, 1932) on scientific and use classifications of coals (see *THE AMERICAN YEAR BOOK*, 1927, p. 581; also Am. Soc. Testing Mats., *Proceedings*, vol. 32, I, p. 439, 1932). The B. t. u. value and fixed carbon content of coals as they occur in na-

ture will probably be the essential criteria on which a scientific classification into four major groups of classes—anthracite, bituminous, sub-bituminous and lignitic—will be based. Factors affecting the use of coal in the portland cement, ceramic and non-ferrous metallurgical industries were reported. The *symposium* also contains a wealth of valuable information on coal technology.

Petroleum Products.—Due to the increase in compression pressures resulting from improved automobile design, the anti-knock value of gasoline has become practically as important as volatility, generally considered to be the most important property of a motor fuel (see *THE AMERICAN YEAR BOOK*, 1928, p. 635). Recognizing the necessity for a thorough study of the many factors that make the measuring of detonation characteristics of motor fuels so complex, the Cooperative Fuel Research Committee has been working on this problem for the past four years. These studies, which have included surveys of anti-knock values of available fuels and comparisons of different test methods and apparatus, have resulted in the design of an improved knock-testing engine which determines the knock characteristics of gasolines in terms of an arbitrary scale of octane numbers. Octane number is defined as being numerically equal to the percentage by volume of isooctane (2, 2, 4-trimethylpentane) in a mixture of isooctane and normal heptane, used as a primary standard for measurement of knock characteristics. While conditions of engine speed and operating temperature are still being studied in connection with road tests (*Proceedings*, 13th Annual Meeting, Am. Petroleum Inst., Sect. III, 1932), a proposed method based on the apparatus and procedure developed by the committee has been published (Am. Soc. Testing Mats., *Proceedings*, vol. 32, I, p. 415, 1932).

The problem of gumming of gasoline has also received much attention by investigators during the past few years since gum formation, due to oxidation of certain gasoline constituents which upon evaporation from

non-volatile compounds deposited as resinous or varnish-like materials, may seriously interfere with the functioning of the engine. Tests for determining gum content of gasolines have been developed (Am. Soc. Testing Mats., *Proceedings*, vol. 32, I, p. 412, 1932) and studies are being made of tolerances of engines for preformed gum and gum stability of gasoline (Soc. Automotive Engrs., *Journal*, May, 1932, p. 198).

Textile Materials.—In reviewing the types of rayons and presenting a concise survey of knowledge of their internal structure, which world-wide research has recently provided, H. DeW. Smith (Am. Soc. Testing Mats., *Proceedings*, vol. 32, II, p. 749, 1932) shows the relationship of rayon structure to its properties and characteristics which necessarily must be considered in the successful utilization of rayon in the textile mill and in the formulation of rayon specifications. The present commercial methods of producing rayon utilize cellulose as the raw material and, depending on the methods used in getting the cellulose into solution, four types are obtained, namely, nitrocellulose rayon, viscose rayon, cuprammonium rayon and cellulose acetate rayon. No matter what the process of dispersion or the method of spinning, the final structure of the rayon filament resembles that of the native fibers in that it is composed of a mass of long slim particles or micellae, but differs from the natural fibers in that the micellae are smaller and less regular in size and form a more imperfectly arranged network. Most of the differences between the properties of natural fibers and of rayons as well as the distinctive behaviours of the several types of rayon are intimately connected with the orientation of the micellar structure.

The many possible applications of asbestos, the fire-resistant properties of which are well recognized, in the manufacture of asbestos textiles are revealed in a paper by C. K. Dillingham (Am. Soc. Testing Mats., *Proceedings*, vol. 32, II, p. 743, 1932) describing the occurrence and mining of asbestos fiber, its subsequent manu-

facture into textiles and a brief outline of their characteristics and uses.

TESTING

Testing of Wire Rope.—Development of methods for testing wire and wire rope in relation to its useful service has been the subject of considerable research, since wire rope is subject to much abuse in the field and, accordingly, prediction of its life on the basis of laboratory tests is often disappointing. An ingenious form of endurance testing apparatus for rope wire, developed by A. V. de Forest and L. W. Hopkins (Am. Soc. Testing Mats., *Proceedings*, vol. 32, II, p. 398, 1932), places the wire under alternate tension and compression, induced by passing the wire over a 90-deg. sector of a grooved sheave (the stress therefore being determined by the radius of the sheave and the diameter and modulus of elasticity of the wire) and rotating the wire axially while maintaining a constant axial tension so adjusted as to prevent "whipping" at the high speed of rotation used. The test has proved of value in comparing the various elements of processing wire with a practical measure of quality and has led to changes in annealing, patenting and drafting practices in wire making with resultant improvements subsequently verified by fatigue tests. Endurance tests of wire rope were made in a different machine, in which short lengths of rope under suitable tension pass around three closely-spaced sheaves mounted in a frame, subjecting the rope to reverse bending of any desired amount. Torsional stress may also be introduced. After completion of the test, considered reached when a predetermined number of wire breaks appear within 1 ft., the rope is dissected and its condition analyzed.

Extensometer for Tension Tests.—An autographic automatic extensometer of high strain magnification, for universal applications in tension and compression testing, developed by R. L. Templin (Am. Soc. Testing Mats., *Proceedings*, vol. 32, II, p. 783, 1932) provides an inexpensive, practicable means for determining yield strength of materials in routine tests. The

instrument consists of a light lever extensometer assembly to be clipped to the specimen, a 5:1 bell crank lever making knife-edge contact, and a fine-thread contact screw adapted to touch the long end of the lever and rotated up to contact by a Selsyn motor. Another Selsyn unit geared to the recording drum is actuated by a driving motor connected to the drum gear by a reversing friction drive controlled by magnets energized by an electric circuit through contact screw and lever. With this device load-strain curves at strain magnification as high as 16,000 have been obtained and hysteresis loops traced with high precision.

Electric Strain Meter.—The electric strain meter developed by R. E. Davis and R. W. Carlson (Am. Soc. Testing Mats., *Proceedings*, vol. 32, II, p. 793, 1932) primarily for determining deformations and temperatures in mass concrete has been a valuable addition to the several instruments of this kind made available in recent years (see *THE AMERICAN YEAR BOOK*, 1927, p. 583; 1928, p. 633) for remote-reading or recording. For its operation in determining deformations, the strain meter depends upon the fact that within the elastic limit the electrical resistance of steel wire varies in direct proportion to stress in the wire; while in temperature determinations, the well-known relation between resistance and temperature of steel wire is employed. The design is such that temperature observations are not affected by deformation and that strain observations are not affected by temperature changes. Representative test results from strain meters embedded in concrete indicate a close and consistent agreement between strain-meter readings and corresponding readings taken with a mechanical strain gage. Calibration has been found to remain constant over considerable periods of time.

Workability of Concrete.—A study of the workability of concrete mixtures by means of a "remodeling test," which measures the relative effort required to change a mass of concrete from the slump cone shape to a disk by means of jiggling, the

change in shape involving restrained flow under conditions intended to simulate the placing of concrete, is described by T. C. Powers (Am. Concrete Inst., *Journal*, vol. 3, February, 1932). Tests with this apparatus of a wide variety of aggregate size combinations show that type, gradings and combinations of aggregates, and consistencies and quantities of pastes are all related to each other and to the property of workability. While the test does not offer a complete measure of workability, it seems to provide a good indication of the amount of placing effort which a mix will require under certain conditions, and since the test makes distinctions between concrete mixes to an unusual degree it provides new fields in investigations of concrete mixtures and in design of mixes.

Presentation and Analysis of Test Data.—The value of scientific application of statistical theory in the acquisition and interpretation of good data and the general recognition that this subject is receiving in many engineering fields was apparent from a round-table discussion before the American Society for Testing Materials. Statistical control is in effect the scientific establishment of expected qualities, dimensions and characteristics on the basis of past experience. It is used for analyzing the value and correctness of data, the establishment of economic standards of quality, and the scientific control of inspection. In the case of sampling inspection, the development and application of scientific methods will depend on the introduction of a program of statistical control, covering each step of the manufacturing process from raw materials to finished product. Through methods of statistical analysis, recording and control of scientific data the present methods of acceptance and rejection on the basis of the success or failure of a specified number of samples may be modified and possibly different methods of interpreting the results of acceptance testing established. (Reference: W. A. Shewart, "Economic Control of Quality of Manufactured Product.") The effective application of statis-

tical methods in the use of refractory test data and in studies of corrosion data from immersion tests was demonstrated two years ago (see *THE AMERICAN YEAR BOOK*, 1930, pp. 634, 635). A further application of statistical methods to controlled data from immersion tests by R. F. Passano and the application of control analysis to the quality of varnished cambric tape by M. F. Skinker illustrate the advantages which can be realized through the adoption of these methods (*Am. Soc. Testing Mats., Proceedings*, vol. 32, II, pp. 468, 670, 1932).

STANDARDIZATION

General.—Despite the unfavorable influences of present-day industrial conditions and of economic stress, the development of new standards covering materials of engineering and construction has kept pace with that of previous years. In these days the use of materials specifications in commercial and industrial transactions is a safeguard against the threatened lowering of quality standards, in view of highly competitive conditions that invite the production of goods “at a price.”

New Specifications and Methods of Testing.—The revision of 7 standards and 36 tentative standards, in order to keep them abreast of current practice, in addition to the promulgation of 29 new specifications and 18 methods of testing, are evidences of the vigorous and effective manner in which standardization work has been carried forward in the engineering materials field (*Am. Soc. Testing Mats., Proceedings*, vol. 32, I, p. 522, 1932), the number of standards now issued totaling 667.

Gray-iron Castings.—The year was notable for the introduction of specifications for gray-iron castings based on tensile strengths ranging from 20,000 to 60,000 lbs. per sq. in. to supersede all existing specifications for these castings including those for high-test cast iron. The new classification in effect gives gray iron a new recognition through pointing definitely to attainable superior physical properties under the modern manufacturing processes.

Steel.—In response to a demand for constructional steel for work of heavy character a specification for structural medium steel was drafted having a tensile strength of 60,000 to 72,000 lbs. per sq. in. Following studies of galvanized iron and steel wire and wire products, new specifications representing the best thought on quality requirements for the base materials and coatings were prepared. Additional specifications in the metals field covered structural rivet steel, medium-carbon steel boiler tubes, cast-iron culvert pipe, higher strength malleable iron castings for railroad service, ferro-tungsten, ferro-molybdenum alloys, copper transmission cable and copper water tubing. Specifications for aluminum alloy shapes were an important metallurgical development in the field of high-strength structural light alloys. The extreme lightness and excellent properties of magnesium give good promise of increasing applications of this metal, specifications having been prepared this year for magnesium-base alloy sheet and for wrought shapes.

Paints.—A method for determining the hiding power of wet paints was formulated following an extensive series of cooperative tests. Specifications for four ethylene glycol ether solvents that enter into the manufacture of lacquers have been prepared to replace the many commercial specifications which now flood the market. Studies of electrical insulation have resulted in methods of testing and grading mica and mica products and testing of flexible varnished tubing and insulating rods. A new specification for insulated wire and cable represents an important step forward in the preparation of satisfactory rubber product specifications, since quality is evaluated solely on the results of performance tests intended to simulate service conditions.

Cement.—In the methods of sampling and testing portland cement extensive changes were made in the tolerances applying to the testing apparatus, and a clarification of the text as well as the manual of cement testing was made. A keen interest in

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masonry cement resulted in the development, early in the year, of new specifications for this product. Because of the importance of the subject of durability of concrete a proposed method of testing concrete and concrete aggregates by freezing and thawing was published as information.

Concrete.—A development of importance to municipalities is the publication of proposed specifications for concrete pavements prepared by the American Concrete Institute (*Journal*, vol. 3, March, 1932). The specifications cover principles of design, proportioning and mixing of materials, proper finishing, curing and protection, and are sufficiently flexible to fit local conditions and to provide for unusual traffic or subgrade conditions. An innovation in the reinforced concrete field is the standardization of specifications for burial vaults (*Journal*, vol. 3, May, 1932).

New Standardization Fields.—Since new developments today become the standards of tomorrow it is important to record the organization, under the American Standards Association procedure, of a sectional committee on sieves for testing purposes; also new committees, by the American Society for Testing Materials, on mortars for unit masonry, on analytical studies of industrial waters and on spectrographic analysis. The inauguration of a committee on spectrographic analysis promises valuable developments in the realm of engineering materials. The rôle of the spectrograph as a qualitative and quantitative analytical tool has been previously referred to (see *THE AMERICAN YEAR BOOK*, 1927, p. 582). Consideration will be given to the standardization of operating technique and apparatus, and to the applicability of the spectrograph to particular materials.

INDUSTRIAL STANDARDIZATION

By P. G. AGNEW

SECRETARY, AMERICAN STANDARDS ASSOCIATION

PROGRESS IN THE NATIONAL MOVEMENT

Since 1918 when the American Standards Association was formed by a group of technical societies, 218 national industrial standards have been approved and about 200 more have been started but not yet completed. Included among those agreed upon by representatives of all groups concerned are such diverse projects as an inch-millimeter conversion factor for industrial use, dimensions and specifications for the four major species of wood poles, specifications for bolts and nuts, various wire and cable standards for both overhead and underground use, specifications for materials for rock dusting of coal mines, specifications for dry cells and batteries, safety codes for abrasive wheels, elevators and mechanical refrigeration equipment, and

others covering practically every field of engineering and industry. Among those that are still in the formative stage are a safety code for grandstands, a project on manhole frames and covers, another on the classification of coals, one on the rating of rivers, and a comprehensive project on electrical definitions covering most of the fundamental terms on which the science of electricity is based. This partial list is indicative of the wide field encompassed in the national standardization movement thus far.

IMPORTANCE OF STANDARDIZATION IN THE PRESENT SITUATION

Perhaps no other element in modern industry has been so important in production as standardization. All manufacturing processes have been greatly affected by the development of acceptable industrial standards,

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and today they constitute a major managerial tool in well managed small plants as well as in the more highly integrated enterprises. In comparing the immediate circumstances of our life today with a generation ago, as much emphasis must be given to changed and improved methods as to the development of inventions and new products. The application of standardization to industry has been merely the projecting of a tendency as old as civilization itself. As a matter of fact, a standard might be briefly defined as a consciously established habit or tradition that is followed *so long as it serves a constructive purpose*. When conditions change, the standard has to be changed to meet the needs of new conditions. Early in the machine age it became evident that there was a need for something to prevent too great a diversity of manufactured goods, especially in the primary mechanical industries where interchangeability of parts was so important. Cooperative action among manufacturers was much slower in coming into being than might have been expected. It was not so many years ago that certain makes of automobiles used their own size screws and nuts that did not conform to any standard, so that when repairs were made, it was necessary to use the one special size provided by the original manufacturer. Inevitably, this caused delays in servicing cars until finally it became obvious that any advantage gained by compelling owners to purchase one particular company's size of screws and bolts for making repairs was more than offset by the dissatisfaction resulting from slow service. Today, the automobile industry is perhaps the most standardized of any, with the result that a new motor can now be designed in about a month in comparison with six or seven months previously required before most of the essential parts were standardized. This standardization does not prevent each maker from introducing style and individuality into his product and yet at the same time it does contribute to a more dependable quality and to greater convenience to users.

SOCIAL EFFECT OF STANDARDIZATION

Goods Distribution.—Standardization has greatly reduced both the production and sales cost of articles and, by keeping the varieties of similar goods to a reasonable minimum sufficient to meet all ordinary needs, it has increased capital turnover by making it possible for the manufacturer to meet current demands without carrying an excessive inventory. Greater leisure and comfort have been brought within the reach of a larger number of people, and the standard of living of society as a whole has been raised. When scientists make new discoveries or inventions, they are of little value to society until mass production methods and standardization remove them from the laboratory and put them within the reach of a large number of people at a price they can afford to pay. Not many years ago industry's primary problem was how to *make* an increasing supply of goods to meet human wants at a reasonable price. Today manufacturers are trying to develop ways of *distributing* more goods at a reasonable cost so that the vast sum of money invested in plants and equipment can earn its keep and at the same time give employment to workers and maintain purchasing power at a high level.

Standardized Goods.—Standardization can play as important a role in the solution of these problems as it did when the major object was to increase production. One essential effect is to stabilize and broaden markets, because uniform products give uniform results in use. One of the best evidences of this is the tremendous growth in recent years of uniform quality packaged goods. Whether the times are good or bad, the sales records of many companies will show that the public favors known qualities in the goods it buys. For this reason, good standardized articles selling at a fair price enjoy a wider market at a low sales cost to both the manufacturer and the distributor. With goods of this kind, the need for costly, high-pressure sales methods is reduced almost to the vanishing point.

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Furthermore guess work is eliminated because the buyer can make his selection from goods of known quality, and the buyer and the seller speak the same language. Production costs are inevitably lower because the demand for making up special types and special sizes is eliminated, and manufacturers can make up goods for stock, which in turn hastens deliveries. If a real program of standardization is initiated in a plant, it inevitably does away with uneconomical practices arising from accident or tradition. Indecision in both production and utilization is done away with, allowing more time and thought to be devoted to design.

Intermediary Goods.—In the field of intermediary goods where one manufacturer provides materials that another uses in making an ultimate consumer product, standard specifications are almost indispensable today. They bring very real advantages to the purchasing agent because through them he can secure competitive bids on the same quality of material, and the details of his job are greatly simplified. Routine procedure for the acceptance of material becomes much easier, and the greater uniformity and reliability of purchases made under standard specifications, and the fact that qualities are more thoroughly understood, make for greater economy in use. However, if specifications are to remain serviceable, they must be frequently checked and revised so as to keep pace with improvement in production methods.

AMERICAN STANDARDS ASSOCIATION

Purpose.—The American Standards Association is recognized today as the authoritative organization where national standards are promulgated and approved. It is essentially an industrial forum or legislature which brings together all those directly concerned with a project to study a specific problem, to formulate a workable and acceptable standard and submit it for approval to an authorized committee representing all the groups having a major interest in the problem in hand, including producers, con-

sumers and general interests. When the great preponderance of committee opinion is favorable to a project, then it is submitted to the Association for approval as an American Standard with the full knowledge that the standard represents a real national opinion.

Function.—Thus the organization truly functions as a forum or court of review where the points of view of various groups can be expressed and given consideration in the establishment of national standards. This cooperative method of work prevents one group from legislating against another group whose interests are affected, and there is provided a working medium for dealing with important problems in a practical manner. In this way, different groups find a medium for arbitrating their differences for themselves and to arrive at agreements that promote the interests of everyone. Any responsible trade, technical, social or governmental organization can request the initiation of a standardization project under the rules of procedure of the American Standards Association. A technical staff carries on the work on the various projects. The final approval of standards rests with the Standards Council made up of representatives of all the 39 Member-Bodies of the Association. The general administration of the Association's work is vested in a Board of Directors of nationally known industrial executives who give generously of their time, energy and thought to the satisfactory solution of national standardization matters.

Cooperation.—About 475 national organizations are officially participating in the work on various standardization projects, while the membership of the technical committees that study and formulate national standards includes 2,700 individuals representing practically every branch of industry. Forty-three branches of the Federal Government are actively participating in ASA technical work while six executive departments are Member-Bodies of the ASA with representation on the Standards Council. The

INDUSTRIAL STANDARDIZATION

Bureau of Standards is officially represented on 83 ASA projects and is taking official leadership in 14 of these. As a great research laboratory, the Bureau places men on the technical committees as independent technical experts. In a number of cases where there has been an acute need for research work, special funds have been raised by industry to support this research at the Bureau. Cooperative arrangements have been made between the Bureau and the ASA to advance certain Commercial Standards to the status of American Standards. A general announcement on this subject by the Bureau states: "In order that the work on Commercial Standards may be properly coordinated with other standardization activities being carried out in various American industries and their value be more generally appreciated, and in order that duplication of work and the promulgation of conflicting standards may be avoided, certain of the Commercial Standards, at the specified request of the industries concerned, are being submitted to the American Standards Association for approval as American Standards."

Procedure.—Work on individual projects is handled chiefly through technical committees made up of accredited representatives of all interested groups including manufacturers, employers, distributors, consumers, technical bureaus of the Federal Government, and technical and trade associations. Sometimes subcommittees are appointed to study and discuss details; sometimes this work is done by entirely separate bodies or individuals. In either event, the committee must be in essential agreement before the recommendation can be submitted to the Association for final approval. Frequently standards that have been developed by other associations and societies (such as the American Society for Testing Materials, the American Society of Electrical Engineers, the American Gas Association and other similar organizations) are submitted to the American Standards Association for approval as American Standards in order to give

them a nationally recognized standing among all industries.

CLASSIFICATION OF APPROVED STANDARDS

The 218 American Standards already approved apply in the following classifications: civil engineering and building trades, mechanical engineering, electrical engineering, automotive engineering, transportation, ferrous and non-ferrous metallurgy, chemical, mining, wood, pulp and paper, and textile industries. The list of completed standards is too long to enumerate here. There are a number, such as those for screw threads and for cylindrical fits and limit gages for interchangeable manufacture, that pertain to several industries. Also those for bolts, nuts and rivets, pipe flanges and fittings, specifications for wrought iron and steel pipe, ball and roller bearings, and small tools and machine tool elements are not confined in use to any one particular business. The safety code for mechanical refrigeration, completed about a year ago but now undergoing revision to cover newly developed refrigerants, not only helped to protect the lives of many people but also materially helped both municipalities and the manufacturers by having a general agreement on various aspects of installation and use. In the electrical field, the National Electrical Code and the National Electrical Safety Code are widely recognized and followed. It has been stated by competent authority that what these two codes have saved the power and light industry is worth more than the entire cost of operation of the American Standards Association to date. A series of standard installation requirements for gas burning appliances has recently been approved that will go a long way in clearing up many of the manufacturers' and distributors' problems. A code on the use of explosives in bituminous coal mines was approved some years ago and has been widely followed, representing as it does the joint opinion of the operating companies, manufacturers of explosives, state mine inspectors, professional mining engineers and other

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groups. There are a number of exceedingly important projects that are not yet finished; among them a safety code for grandstands, a general ventilation code, standards for manhole frames and covers, the classification of coals from lignite to anthracite, a project on foundry equipment, and another on motion picture equipment.

SAFETY CODES

From its earliest beginnings, the Association has been interested in the development of a group of about 50 national safety codes which is helping greatly to clear up the confused situation which has existed for a number of years in safety requirements of various states which in many cases have put industry in an exceedingly embarrassing position in trying to follow the conflicting requirements of insurance companies and state inspectors. This is especially important for many manufacturers of equipment that sell in various states. The development of nationally acceptable codes clears up this confused situation. About 35 safety codes covering such things as abrasive wheels, aeronautics, elevators and escalators, floor and wall openings, railings and toe boards, foundries, power presses and foot and hand presses, have all been approved and are not only being extensively used by industries themselves but are also being widely adopted, completely or in substance, by state regulatory bodies as their own regulations. Each code is in the hands of a technical committee made up of representatives of manufacturer and employee groups appointed by their trade and technical associations, casualty insurance groups, govern-

mental regulatory bodies, and other interested units. Both the stock and mutual casualty insurance companies have officially adopted the policy of bringing their requirements into agreement with the approved codes. This program is a good illustration of how cooperation between industry and government works for the general good. Because of what has been accomplished so far in this program more and more state governments are relying upon the ASA for the formulation and development of acceptable safety codes—a function formerly performed almost entirely by state personnel. From 250 to 300 national organizations, and all of the state governments interested are officially cooperating in this safety code program.

INTERNATIONAL STANDARDIZATION

International standardization came into being with the formation of the International Standards Association in Switzerland early in 1929. Notable work has already been accomplished internationally on ball bearings so that now over 50 of the more important sizes are standard throughout the world and are completely interchangeable. Other subjects that have been given international attention include screw threads, shaft heights for electrical machinery, couplings, grinding wheels, pipe, and nomenclature and methods of test of petroleum products. The international secretariat for the latter project was assigned to the American group in 1930 and is now in course of development. The American Standards Association is a member of the International Standards Association and has representation on its Council.

COMMERCIAL AVIATION

By ANDREW F. HADUCK

BELLANCA AIRCRAFT CORPORATION

GENERAL

Increased traffic over scheduled air lines, expansion of the Federal Airways System to 19,500 miles of

lighted and radio-equipped routes, and advances in engineering and research work are among the developments in commercial aviation for 1932.

COMMERCIAL AVIATION

One of the most outstanding accomplishments of commerce and industry was the unflinching climb of air transport to new heights in spite of the continued adverse economic conditions. In the United States 50,321 more passengers were carried by scheduled air transportation during the first eight months than were carried during the same period in 1931, an 18% increase. Coincidentally 5,474,696 more miles were flown, a 20% increase over 1931. Air express showed the most phenomenal gain, an increase in poundage of 59%. More and more people from every field of endeavor have begun to realize the speed, comfort, and service available from air transportation. The only bright spot in the entire transportation industry for 1932 was the progress of its youngest branch, air transport.

AIR MAIL AND PASSENGER TRANSPORT

Flight Mileage and Passengers.—

Aircraft of American-operated scheduled air lines carried 248,954 passengers and flew 24,668,414 miles during the first six months of 1932, according to the results of a survey by the Aeronautics Branch. These totals represent increases over the first six months of 1931 of about 55,000, with respect to passengers carried, and more than 4,000,000 in number of miles flown. This survey also shows that of the 60,850 trips started during this period, 57,630, or approximately 95%, were completed. The peak month of the half-year period for miles flown and passengers carried was June. In that month the air lines flew 4,421,978 miles and carried 51,871 passengers.

Mail and Express.—Mail carried in the period January-June, 1932, was 4,342,507 pounds as compared with 4,589,707 pounds in the corresponding part of 1931. Air express was 712,638 pounds in the first half of 1932, a substantial increase over the 417,309 pounds carried in the first half of 1931. The biggest month for air express business was March, when the total poundage was 140,505. March also was the leading period for

air mail, 765,228 pounds having been transported in that month.

Aircraft, Fuel and Employment.—

A survey also revealed that 580 aircraft were in use on American-operated air lines and that these aircraft consumed 11,178,807 gallons of gasoline and 317,656 gallons of oil during the first half of the year. It was shown, too, that the air lines furnished employment for 5,461 persons, classified as follows: 558 pilots, 167 co-pilots, 1,929 mechanics, 1,522 field personnel, and 1,285 office personnel.

A summary presenting comparisons with the first six months of 1931 follows:

TRANSPORTATION SUMMARY

	Jan.-June 1932	Jan.-June 1931
DOMESTIC		
Miles flown.....	22,204,295	18,129,168
Passengers flown	217,588	169,816
Express—pounds	441,192	247,422
Mail—pounds...	4,081,270	4,332,714
Mail payments..	\$9,198,060.32	\$9,160,260.88
Passenger—miles	54,534,746	40,855,654

FOREIGN

Miles flown.....	2,464,119	2,175,262
Passengers flown	31,366	23,835
Express—pounds	271,446	169,887
Mail—pounds...	261,237	256,993
Mail payments..	\$3,445,643.95	\$3,464,772.00
Passenger—miles	8,994,792.	6,646,247

DOMESTIC AND FOREIGN

Miles flown.....	24,668,414	20,304,430
Passengers flown	248,954	193,651
Express—pounds	712,638	417,309
Mail—pounds...	4,342,507	4,589,707
Mail payments..	\$12,643,704.27	\$12,652,032.88
Passenger—miles	63,529,538	47,501,901

SUMMARY OF UNITED STATES AIR TRANSPORT OPERATIONS

Miles of American-operated air transport routes:	
Domestic.....	28,398
Foreign.....	19,980
	48,378
Miles in operation with United States mail:	
Domestic.....	25,430
Foreign.....	19,843
	45,273
Miles in operation with passengers:	
Domestic.....	27,306
Foreign.....	19,900
	47,206
Miles in operation with express:	
Domestic.....	26,906
Foreign.....	19,763
	46,669

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Airplane-miles scheduled daily (average):	
Domestic.....	131,453
Foreign.....	11,325
	142,778
With United States mail:	
Domestic.....	99,416
Foreign.....	10,967
	110,383
With passengers:	
Domestic.....	118,558
Foreign.....	11,165
	129,723
With express:	
Domestic.....	113,396
Foreign.....	10,807
	124,203

AIR-TRANSPORT SERVICES AND OPERATORS

Number of air-transport services in operation.....		132
Mail.....		90
Passenger.....		119
Express.....		109
Domestic routes.....		114
Mail.....		74
Passenger.....		102
Express.....		94
Foreign routes.....		18
Mail.....		16
Passenger.....		17
Express.....		15
Number of scheduled air-transport operators ¹		37
Domestic.....		31
Foreign.....		7

¹ One company operates both domestic and foreign services.

MISCELLANEOUS FLYING

Miscellaneous flying, including such operations as experimental, exhibition, industrial, student instructions, and pleasure flying, showed a decrease in both mileage and passengers carried for the first six months of 1932 over the same period for 1931. The total number of miles flown for the first half of 1932 was 33,722,685 against 43,282,595 in the first six months of 1931. The total number of passengers carried for hire or pleasure was 500,553 against 811,590 for the same periods in 1932 and 1931, respectively.

AIRCRAFT ACCIDENT RECORD

American-operated air transport services flew 24,668,414 miles in the first six months of 1932 with 67 accidents, or 368,185 miles per accident for the period. Only six of these accidents involved passenger fatalities. Of the 67 accidents, 6 were to craft carrying passengers only, 3 to

craft carrying passengers and mail, 2 to craft carrying passengers and express, and 20 to craft carrying passengers, mail, and express. There were 36 accidents to aircraft not carrying passengers, including 18 carrying mail only and 18 carrying mail and express. Eleven of the accidents resulted in pilot or passenger fatalities. Eight of these fatal accidents occurred at night and three during the day. The others in which no fatalities were involved, were divided equally in this respect, 28 occurring during the day time and 28 at night. Causes of the 67 accidents were divided as follows: Personal errors, 10.96%; power-plant failures, 22.39%; airplane failures, 19.26%; miscellaneous (this classification including weather, darkness, and airport and terrain), 47.39%. There were no aircraft accidents concerning which the cause was undetermined or doubtful.

AIRPORTS AND AIRWAYS

Airports.—The growth and development of civil aeronautics in the United States is due in no small measure to the establishment of airports and landing fields by municipalities and private interests. Just a few years ago the airport facilities of the nation were limited almost entirely to the Army and Navy airdromes. On Oct. 1, 1932, there were 2,064 airports and landing fields. Of this number 548 are municipal airports, 612 are commercial, and the remainder are divided into intermediate landing fields. The number of existing airports is by no means sufficient to meet the needs of future progress. Cities and towns without airport facilities are realizing that they cannot afford to be omitted from the rapidly expanding air transportation system. A detail subdivision of the number of airports and landing fields as of Oct. 1, 1932, follows:

Municipal airports.....	548
Commercial airports.....	612
Department of Commerce intermediate landing fields.....	343
Army airdromes.....	51
Naval air stations (including Marine and Coast Guard).....	14

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State-operated fields.....	12
Marked auxiliary fields.....	452
Private fields.....	18
Fields for miscellaneous Government activities.....	9
Total.....	2064
Proposed airports.....	214
Airports and landing fields having any night-lighting equipment:	
Municipal.....	194
Commercial.....	127
Intermediate.....	317
Army.....	26
Navy.....	6
Auxiliary.....	11
State.....	2
Private.....	4
Miscellaneous Government.....	1
Total.....	688

Airways.—The authorized program of airway construction for the fiscal year 1932 increased the number of lighted transcontinental routes to three:—The Transcontinental, from New York *via* Chicago to San Francisco; the Midcontinental, from New York *via* Kansas City to Los Angeles, and the Southern Transcontinental from New York *via* Atlanta to San Diego. In addition lighted routes parallel the east and west coasts and traverse the Mississippi Valley. Shorter routes serve as important feeder links. Practically all of these airways, and there are 19,500 miles, are equipped with radio directional and weather broadcasting stations. In accordance with the program of economy that the Federal Government has instituted, no new airway construction will be undertaken in the fiscal year 1933.

AIDS TO AIR NAVIGATION

A very valuable addition in 1932 to the long list of aids to air navigation was the transmission of weather maps over the teletypewriter of the Federal Airways System. An experimental circuit over which maps were transmitted by teletypewriter three times daily to six airports was maintained for several months and excellent results were obtained. In this manner a weather map which represented data less than an hour old could be transmitted to all stations on the circuit. By studying the weather maps as they arrive at frequent intervals,

pilots and air transport operators can obtain a comprehensive understanding of the prevailing weather and the trend of the weather. Thus a pilot may choose a route on which weather conditions are shown by the maps to be most favorable, and then during his flight, obtain through his radio even later information about the specific points in which he is interested.

TYPES OF AIRCRAFT IN USE

License Data.—Of 7,386 aircraft that held active licenses on June 1, 1932, 7,089 were single engine and 297 multi-engine, it was found in a survey of the license records. Among unlicensed craft on that date there were 3,337 single engine as against 20 multi-engine craft, among the 3,357 which had been assigned identification numbers. A total of 10,743 aircraft were carried on the Department of Commerce registration records as being either licensed or identified on June 1. Approximately 70% were licensed. Most of the craft actively licensed or identified as of the date which was used as the basis for the survey had been manufactured in 1928 or thereafter. Of all the aircraft under consideration, the greatest number were manufactured in 1929, including 3,296 single engine and 143 multi-engine designs. Those manufactured in 1930 numbered 2,165 single engine and 51 multi-engines; in 1931, 1,513 single engine and 58 multi-engine. Craft manufactured in the first five months of 1932 and holding licenses or identification numbers on the date of survey total 214 single engine and 3 multi-engine.

Horsepower.—Of the total number of craft on record, including licensed and unlicensed, the greatest number were powered with engines of 90 horsepower or less. There were 5,457 in this class. Craft of 91 to 200 horsepower numbered 2,886; and the totals for other classifications were: 201 to 300 horsepower, 1,609; 301 to 400 horsepower, 51; 401 to 500 horsepower, 279; 501 to 600 horsepower, 183; 601 to 900 horsepower, 126; 901 to 1,300 horsepower, 128; and 1,301 or more horsepower, 24.

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Weight.—Classifying licensed aircraft by weights, it was found that the largest class consisted of those weighing from 2,001 to 3,000 pounds. This classification included 1,396 with 90 horsepower or less, 1,358 with 91 to 200 horsepower, 439 with 201 to 300 horsepower, 5 with 401 to 500 horsepower, and 1 with 501 to 600 horsepower.

Seating Capacity.—As to seating capacity, it was found that of the total number of licensed and unlicensed aircraft, the greatest number in any one seating capacity classification was that for 3-place designs. These numbered 4,914. Those of other seating capacities (including crew) were: 1-place, 1,018; 2-place, 2,873; 4-place, 759; 5-place, 371; 6-place, 314; 7- to 10-place, 300; 11- to 15-place, 163; and 16-place and over, 31.

AIRCRAFT PRODUCTION

Aircraft manufactured during the first nine months of 1932 totaled 1,020 according to a survey made by the Aeronautics Branch of the Department of Commerce. This is less than half of the number (2,335) manufactured during the same period in 1931. The following compilation lists the number of each type manufactured in 1932:

Monoplanes:

Open cockpit (landplane)	
One-place.....	103 ¹
Two to four place.....	141
Total, open.....	244
Cabin (landplane)	
One to two-place.....	54
Four to seven-place.....	35
Eight-place and over.....	21 ²
Total, cabin.....	110
Amphibians.....	3
Flying boat.....	1
Rotorplanes.....	1
Seaplanes.....	5
Total monoplanes.....	364

Biplanes

Open cockpit (landplane)	
One-place.....	13
Two-place.....	28
Three-place and over.....	34 ³
Total, open.....	75
Cabin (landplanes)	
Two to eleven-place.....	45 ⁴
Amphibians.....	1
Seaplanes.....	2
Total, cabin.....	48
Total biplanes.....	123

Autogiros.....	19 ⁵
Military-airplane deliveries.....	410
Airplanes exported.....	104 ⁶

Grand total.....1,020

¹ Includes 2 convertible (open or closed) craft.

² Includes 1 multi-engine craft.

³ Includes 1 multi-engine craft.

⁴ Includes 7 multi-engine craft.

⁵ Includes 5 closed autogiros.

⁶ Does not include planes listed in the above breakdown nor planes exported in 1932 which were manufactured prior to January 1, 1932.

AIRCRAFT MANUFACTURERS AND PERSONNEL

Consolidation, Design, etc.—The tendency in aircraft manufacture for 1932 has been towards a reduction in the number actively building aircraft. This has resulted partly from mergers, consolidations, and the automatic survival of the fittest. It is estimated that shortly aircraft manufacture will be in the hands of approximately thirty individuals or corporations. With new modern factories the industry in 1932 was able to cut down costs and the number of skilled workmen required for each operation. Duplication of effort and inefficiency in manufacture were practically eliminated. Despite the generally discouraging aspects of the worldwide depression, the major manufacturers continued a program of intensive research and design whose object was to develop airplanes better suited to the needs of each field. As a result the new airplanes developed in 1932 had better performance and flight characteristics. Commercial transport airplanes are now available with speeds of 220 miles per hour. Engines and accessories have practically reached the stage where they are fool-proof.

Pilots and Mechanics.—On Dec. 1, 1932, there were 18,693 active pilots in the United States as well as 8,593 student pilots. California led in number of licensed pilots with 3,497; New York was second with 1,815; and Illinois third with 1,117. The total number of licensed mechanics was 8,442. It is estimated that approximately 8,000 people were employed by aircraft and engine manufacturers. No data is available regarding the number employed in miscellaneous

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flying and other allied branches of the industry.

RESEARCH

Pressure Distribution. — Aerodynamic research has gone ahead in spite of limited appropriations. The National Advisory Committee for Aeronautics has continued its outlined program of research, investigating such subjects as control at low speeds, pressure distribution tests, effect of various factors on airplane and engine performance. As a result of the pressure distribution investigations the designer now knows exactly the distribution of load on any part of a conventional airplane. This knowledge makes it possible to design safer as well as more economical airplanes since the necessary structure can be placed in the most advantageous location without any factor of ignorance. In addition the N. A. C. A. has conducted other miscellaneous structural strength tests of various parts of an airplane in an effort to eliminate any doubt regarding the design and structural suitability of these parts. The determination of the magnitude of the loads imposed on an aircraft by various maneuvers has been greatly facilitated by the development of an instrument known as a V-G recorder. This instrument gives the pilot visual evidence of the speed and accelerations imposed on the airplane for any maneuver. Since an airplane is designed for certain maximum accelerations, these can be noted on the instrument by means of an area which represents the range of speeds and accelerations for which the airplane is designed. If the pointer is kept within this area, the possibility of a structural failure is practically eliminated.

Wind Tunnel.—Aerodynamic investigations during the year have contributed valuable information regarding such subjects as performance, control at low speeds, spins, stalling characteristics, and slow landings. The high speed performance of the present commercial airplane is due in no small measure to the extensive wind tunnel investigation made during the year. The N. A. C. A. has

a wind tunnel in which a full size airplane can be tested for lift, drag, stability, and controllability characteristics at speeds from 40 m. p. h. to 100 m. p. h. Since the horsepower required and the velocity are related to drag it has been possible to investigate the most efficient distribution and relation of the various parts of an airplane to secure maximum performance, *i. e.*, maximum performance for a given horsepower. The constantly increasing speeds and performance of aircraft during the last five years has been the direct result of systematic aerodynamics research in the wind tunnel. The investigations on the effect of different types of engine cowls on speed and engine temperatures helped both the airplane and engine manufacturers to produce a better article. The aircraft manufacturer has been able to increase the speed of his airplane by as much as 18 miles per hour by the use of more efficient cowls discovered as a result of research in this direction.

DESIGN TRENDS

Monoplane Speed. — Speed and more speed was the dominating factor in the design of airplanes in 1932. This has had several noticeable effects in the type of airplane offered for the 1932 market. The monoplane, particularly the low-wing type with a retractable landing gear, seems to be eliminating the biplane from high-speed air transport. The low-wing type is inherently more compact and has less drag, with a resultant advantage in speed over the biplane. Several light monoplane transports had top speeds in excess of 200 miles per hour and cruising speeds around 180 miles per hour. The supreme speed achievement in 1932 for land planes was the establishment of a new high-speed record of 296.287 miles per hour at the National Air Races.

Increasing Use of Metal.—The trend towards the use of metal instead of wood and fabric continued in 1932. Hand in hand with this tendency has been the continuation of the search for lighter yet stronger

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metals. The exacting demands of the air-line operators has resulted in greater simplification of parts requiring maintenance.

Two-row Radial Engine.—The most interesting development in engine design was the debut of the two-

row radial engine. This engine has two banks of seven cylinders each. The over-all diameter is much smaller than that for the conventional single-row radial engine. This is a distinct gain from the viewpoint of high-speed performance.

AMERICAN MACHINERY

By W. H. RASTALL

CHIEF, INDUSTRIAL MACHINERY DIVISION, DEPARTMENT OF COMMERCE

ECONOMIC FACTORS

Business Depression.—As described more fully in THE AMERICAN YEAR BOOK for 1931, the machinery industry feels the impact of business depression with peculiar severity, and as the difficult business situation has continued this has been recognized by a community that ever grows wider. Because of this, 1932 has been a year of great difficulty for machinery manufacturers, at home and abroad. In the following table are statistics measuring the decline in certain branches of the machinery building industry, using index numbers as developed by the trade associations involved:

		Index No.	Decline
Machine Tools:			
February	1929	336	
July	1932	25.1	92.5%
Industrial Pumps:			
April	1929	151.9	
July	1932	27.2	82%
Foundry Equipment:			
May	1928	336	
July	1932	18.7	94%
Wood Working Machinery:			
January	1929	125.1	
May	1932	4.97	96%
Stokers:			
June	1929	123	
May	1932	23.10	81%

When business declines over 80% there is little left. Certainly management is unable to anticipate profits or even cover overhead items. Unemployment necessarily follows, and

there have been many instances of individual distress develop during recent months, the result of consequences in no sense connected with the responsibility of those individuals.

Foreign Situation.—Abroad the situation is not quite so extreme because industry has not been developed to the same high pitch as in this country. The German Machinery Manufacturers Association (Verein Deutscher Maschinenbau-Anstalten) for example, reporting in September, stated that the industry there was operating 32 per cent of total capacity, as compared with 39.17 per cent in 1931, 53 per cent in 1930, 69 per cent in 1929, and 75 per cent in 1928. In this connection it should be emphasized that the above German figures represent the whole machinery industry. Unfortunately, corresponding American data are not available and can only be represented by such figures as were given above.

Employment Decline.—Census figures for 1931 compared with 1929 show that the wage earners employed in the machine tool industry fell from 47,391 to 21,168, a decline of 55.3 per cent. This, of course, is not a measure of the extreme contraction because the 1929 figure is an average for that year, as is also the 1931 figure, but the low point was probably reached in July, 1932. Altogether, the American machinery industry in 1929 employed about 500,000 wage earners. If it is in order to apply the machine tool ratio to this larger total we have a dramatic statement of the unemployment that results from the

impact of depression on the machinery industry.

Rehabilitation.—The probable consequences involved have been recognized during 1932, and as a result the Industrial Rehabilitation Committee of the Banking and Industries Conference was appointed under the chairmanship of A. W. Robertson, chairman of the Board, The Westinghouse Electric and Manufacturing Company. In this connection Mr. Robertson has been able to develop an organization that covers all of the industrial sections of the country, largely through sub-committees, and a campaign is developing directed toward overcoming the difficulties represented by this collapse of equipment buying. Mr. Robertson has gone so far as to state that 50 per cent of the equipment in American industry is obsolete, and suggests that management would be well advised if it carefully considered the implications of the present situation, rehabilitating as good business judgment dictates at a time when such replacements can be made at low cost and with a minimum of disorganization.

Equipment Policy.—This, of course, is merely one factor in a much larger problem. For the first time we begin to see developing an equipment policy for American industry. Heretofore there has been no such policy. During boom periods there has been an anarchy of buying, during periods of depression these purchases have collapsed and the wide fluctuations involved have been the source of a chain of unfortunate economic forces that have worked to no one's advantage. Apparently 1932 is the year when American industry begins to smooth out the wide fluctuations of the equipment curve, and there is reason to believe that this will prove to be a matter of major importance.

Criticism of Machine Age.—Unfortunately, the public seems to be suffering from a great deal of confused thinking in this general connection. We hear and read much of the machine age, robots, technological unemployment, and even more extreme expressions, which imply that the mechanization of industry has completely

changed our world, has brought much human distress, has created a situation that is beyond control, and that we must face the most serious consequences. Remembering that machinery is the instrument that has raised the American standard of living to the highest ever known in any country or at any time in history, and that it has conferred countless blessings on humanity in general, it certainly is difficult to believe it such a Frankenstein. Such discussions appear to overlook the fact that other factors, currency fluctuations, for example, are included among the causes of the present world business situation, and as a consequence the machinery industry is not at all disposed to accept the onus for the present situation in the manner that such comment would imply. In fact, the industry takes the opposite point of view and feels that the road to progress lies in the direction of further technical development.

TECHNICAL PROGRESS

The typical machinery manufacturer during recent months has frequently spread employment by authorizing research work and the redesign of his product, and as a result is prepared to introduce equipment that is greatly improved as soon as expanding demand indicates a volume of business that would compensate him for the development costs involved. There is reason to believe that such progress would be found in practically every branch of the machinery industry, and an upward surge in business should again find the competitive position of American manufacturers far ahead of foreign competition, putting American industry generally in a position to offer new products or old products in more attractive form, better quality and lower prices as soon as expanding demand justifies.

MANAGEMENT POLICY

Generally speaking the American machinery industry is to be congratulated on the showing it has made since 1929. Earlier business crises have frequently resulted in serious business mortality among machinery

manufacturers, and it is a fact that during recent months there have been bankruptcies, mergers and transfer of certain lines of equipment from one shop or company to another, but generally speaking the machinery industry has made a very creditable showing. Competition has not degenerated to the same degree as in previous crises, the price structure ordinarily has not become demoralized, accounting and management practices appear to be on a better basis than ever before, the significance of development costs, obsolescence, and the like are much better appreciated than formerly, and as soon as business improves so that the machinery manufacturer is not forced to live on his reserves, it will undoubtedly be found on a much better basis than ever previously.

MACHINERY EXPORTS

The export of strictly industrial machinery for 1932 will approximate \$60,000,000. This compares with \$153,000,000 in 1931, \$257,000,000 in 1929, and the low following the previous depression 1922, \$112,000,000. These figures reflect in an interesting way the severity of the world business situation which possibly too frequently we think of as an American phenomenon. The export situation has for some months been exceedingly difficult. The collapse of the prices for agricultural products as exported from many countries has caused a very serious contraction in the volume of foreign exchange available for the payment of the costs of their imports, and as the exchange rate in many countries has declined as compared with gold, those Governments have found it necessary to set up commissions for the control of foreign exchange. As a consequence, it is all but impossible to sell American machinery in areas thus affected. Similar forces caused many nations to abandon the gold standard only a few

months ago, and as a consequence prices for American machinery in those countries seem to be inordinately high again, making the purchase most difficult. Furthermore, since British machinery competes with the American product in many of the world's markets, and since the British currency is no longer on a gold basis, it has had the effect of reducing the prices for British machinery as expressed in gold 30 per cent, introducing a new and very difficult type of competition in many markets. Furthermore, in certain countries an effort has been made to control international trade by means of import quotas, and because the United States adheres to the gold standard it has frequently been felt that these quotas should favor other countries. Such circumstances have created a demand in certain parts of the world to "buy from those who buy from us," that is to say, that international trade should be bilateral in character. However, in earlier years a very substantial percentage of the world's trade was carried along upon the basis of multi-lateral transactions; that is, American machinery sold to Argentina might be paid for by a shipment of grain to Europe which, in turn, was covered by a shipment of French cosmetics, perhaps, to this country. Forcing world trade from a multi-lateral to a bilateral basis has the effect of greatly reducing the total volume. For many such reasons exporting machinery during recent months has been abnormally difficult, and yet it is encouraging to note that the export trade in machinery has not fallen off as violently as has the domestic business, and since we entertain the expectation that American manufacturers are today further in the lead than ever before, we can expect these exports to expand rapidly as soon as the business situation rights itself sufficiently to allow trade to fall in channels at all normal.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

DIVISION XIX

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

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| <p>ALLIED BUILDING METALS INDUSTRIES, 10 W. 33rd St., New York City.</p> <p>AMERICAN CERAMIC SOCIETY, 2525 N. High St., Columbus, Ohio.</p> <p>AMERICAN CONCRETE INSTITUTE, 2970 W. Grand Blvd., Detroit, Mich.</p> <p>AMERICAN CONSTRUCTION COUNCIL, 28 W. 44th St., New York City.</p> <p>AMERICAN FOUNDRYMEN'S ASSN., 222 W. Adams St., Chicago, Ill.</p> <p>AMERICAN INSTITUTE OF CHEMICAL ENGINEERS, 85 Livingston St., Brooklyn, N. Y.</p> <p>AMERICAN INSTITUTE OF ELECTRICAL ENGINEERS, 33 W. 39th St., New York City.</p> <p>AMERICAN INSTITUTE OF MINING AND METALLURGICAL ENGINEERS, 29 W. 39th St., New York City.</p> <p>AMERICAN IRON AND STEEL INSTITUTE, 75 West St., New York City.</p> <p>AMERICAN PETROLEUM INSTITUTE, 250 Park Ave., New York City.</p> <p>AMERICAN RAILWAY ENGINEERING ASSN., 431 S. Dearborn St., Chicago, Ill.</p> <p>AMERICAN ROAD BUILDERS ASSN., Press Bldg., Washington, D. C.</p> <p>AMERICAN SOCIETY OF CIVIL ENGINEERS, 33 W. 39th St., New York City.</p> <p>AMERICAN SOCIETY OF HEATING AND VENTILATING ENGINEERS, 25 W. 39th St., New York City.</p> <p>AMERICAN SOCIETY OF MECHANICAL ENGINEERS, 29 W. 39th St., New York City.</p> <p>AMERICAN SOCIETY OF MUNICIPAL ENGINEERS, Navy Department, Washington, D. C.</p> <p>AMERICAN SOCIETY OF NAVAL ENGINEERS, Navy Department, Washington, D. C.</p> <p>AMERICAN SOCIETY OF REFRIGERATING ENGINEERS, 37 W. 39th St., New York City.</p> | <p>AMERICAN SOCIETY OF SAFETY ENGINEERS, 25 W. 39th St., New York City.</p> <p>AMERICAN SOCIETY FOR STEEL TREATING, 7016 Euclid Ave., Cleveland, O.</p> <p>AMERICAN SOCIETY FOR TESTING MATERIALS, 1315 Spruce St., Philadelphia, Pa.</p> <p>AMERICAN STANDARD ASSN., 29 W. 39th St., New York City.</p> <p>AMERICAN STATISTICAL ASSN., 114 Woodward Bldg., Washington, D. C.</p> <p>AMERICAN WATER WORKS ASSN., 29 West 39th St., New York City.</p> <p>AMERICAN WELDING SOCIETY, 29 W. 39th St., New York City.</p> <p>BUILDING TRADES EMPLOYERS' ASSN., 2 Park Ave., New York City.</p> <p>COMMITTEE ON EXPERIMENTAL POWER, 2 Rector St., New York City.</p> <p>ENGINEERING FOUNDATION, 29 W. 39th St., New York City.</p> <p>ILLUMINATING ENGINEERING SOCIETY, 29 W. 29th St., New York City.</p> <p>INSTITUTE OF RADIO ENGINEERS, 37 W. 39th St., New York City.</p> <p>NATIONAL AERONAUTIC ASSN., 1623 H St., N. W., Washington, D. C.</p> <p>NATIONAL BOARD OF FIRE UNDERWRITERS, 85 John St., New York City.</p> <p>NATIONAL ELECTRIC LIGHT ASSN., 420 Lexington Ave., New York City.</p> <p>NATIONAL FIRE PROTECTION ASSN., Boston, Mass.</p> <p>NEW YORK ELECTRICAL SOCIETY, 29 W. 39th St., New York City.</p> <p>SOCIETY FOR PROMOTION OF ENGINEERING EDUCATION, 29 W. 39th St., New York City.</p> <p>SOCIETY OF AUTOMOTIVE ENGINEERS, INC., 29 W. 39th St., New York City.</p> <p>SOCIETY OF NAVAL ARCHITECTS AND MARINE ENGINEERS, 29 W. 39th St., New York City.</p> |
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DIVISION XX

GEOPHYSICAL SCIENCES

DYNAMIC AND STRUCTURAL GEOLOGY

BY KIRTLEY F. MATHER

PROFESSOR, HARVARD UNIVERSITY

GENERAL

Field studies and laboratory experimentations in dynamic and structural geology have been vigorously continued throughout the year, despite the curtailment resulting from business conditions and the demand for governmental economy. Many geologists have devoted their time, in the absence of opportunities for continuing field work, to the important task of preparing for publication the data gathered in previous years. Thus much information secured by consulting geologists and others formerly engaged in commercial work is now being made available.

Work has progressed satisfactorily on the guide-books and maps for the Washington meeting of the International Geologic Congress to be held in July, 1933. The guide-books for the field excursions, scheduled to precede and follow the technical session of the Congress, will meet a long-felt want, inasmuch as they will cover many localities of geologic interest scattered from coast to coast.

STRUCTURAL GEOLOGY

Use of Geophysical Instruments.—During the last few years, the portable seismograph, torsion balance, magnetometer and other geophysical instruments have been used with remarkable success, although with great expenditure of money and time, in the task of discovering the subsurface structure at localities where such knowledge might aid in prospecting

for petroleum or metalliferous ore deposits. Until lately, practically all the information thus obtained has been withheld from publication, but some of it is now being made available and there is good reason for expecting that in the near future it will be possible to make broad studies of the basement structure of such regions as the Gulf Coastal Plain. Moreover, the technique of geophysical field work has been perfected to such a degree that these instruments may now be used in solving many perplexing problems of pure, rather than applied geology. Thickness of glacial drift, or of sedimentary rocks resting on a crystalline floor, location of buried stream channels, as well as details of structure of sedimentary formations, which previously were not amenable to observational study, are appropriate subjects for geophysical determination. With these new tools the geologist may now "see the invisible."

Major Earth Structures.—In a notable study of "Insular Arcs, Foredeeps and Geosynclinal Seas of the Asiatic Coast," A. C. Lawson (*Bull. Geol. Soc. America*, vol. 43, pp. 353-382, 1932) explains the sial of the continents as a result of the chemical decomposition of the sima and the incorporation of the resulting siliceous sediments into the melt formed when geosynclines collapsed and their deeper parts fused. The arcs which festoon the Asiatic and Alaskan coasts of the Pacific are regarded not as uplifted

seafloors, but as true continental margin, underthrust by the landward creep of oceanic sima. The suggestion is a welcome relief from the difficult hypothesis that the several continental discs of sial are residual fragments from a formerly world-wide shell of this light material. J. Edmund Eaton advances a stimulating speculation concerning the major structural features of southwestern United States as resulting from what he calls the "decline of the Great Basin," which involved the westward creep of the Sierra Nevada massif "under gravity" (*Bull. Am. Assoc. Petroleum Geologists*, vol. 16, pp. 1-50, 1932).

Appalachian Structures.—The perennial problem of the Taconic Revolution is recalled by G. W. Crickmay as he presents the "Evidence of Taconic Orogeny in Matapedia Valley, Quebec" (*Am. Journ. Sci.*, vol. 24, pp. 368-86, 1932). In the region studied, the unconformity between the Ordovician and Silurian is a pronounced structural break: Taconic orogeny, at least in Gaspé, is of major importance.

L. M. Prindle and Eleanor B. Knopf (*Am. Journ. Sci.*, vol. 24, pp. 257-302, 1932) present the results of their study of the exceedingly complex geology of the Taconic quadrangle, with its numerous overthrust faults and recumbent folds. They conclude that a shore-zone argillaceous deposit which originally lay east of the present Green Mountain axis was transported to the west to rest as an exotic facies on different lithologic facies of the same or younger age. The description is strongly reminiscent of Alpine geology.

A notable contribution of our knowledge of the Southern Appalachians is made by H. P. Woodward in *Bulletin* 34 of the Virginia Geological Survey, entitled, "Geology and Mineral Resources of the Roanoke Area." A series of great thrust slices which overlap from the southeast and lie upon each other like shingles is described. The report deals with a considerable section of the Blue Ridge thrust mass, together with a good sample of the complexly folded and

faulted sedimentary formations of the geosyncline.

Mississippi Valley.—Under the startling title, "Kansas Laccoliths," G. L. Knight and K. K. Landes (*Journ. Geol.*, vol. 40, pp. 1-16, 1932) describe certain pronounced domal structures in the sedimentary rocks of Woodson County, which they attribute to laccolithic intrusion in post-Pennsylvanian time. Dikes and hydrothermally altered rocks have been encountered in drilling operations. The field studies of C. L. Dake and Josiah Bridge (*Bull. Am. Assoc. Petroleum Geologists*, vol. 16, pp. 629-52, 1932) among the "Buried and Resurrected Hills of the Central Ozarks" reveal the fact that sedimentary rocks deposited on a pre-Cambrian surface of great relief display original dips as steep as 30°. Stuart K. Clark (*Journ. Geol.*, vol. 40, pp. 46-61, 1932) concludes that the "Plains-Type Folds of the Mid-Continent Area" are a result of vertically acting forces rather than horizontal compression. He attributes certain of these folds to movements along an old fault plane in the basement rocks. An excellent illustration of the wealth of geologic knowledge which may be secured from accurately-kept and intelligently-studied well records is afforded by the Oklahoma City oil field. D. A. McGee and W. W. Clawson, Jr. (*Bull. Am. Assoc. Petroleum Geologists*, vol. 16, pp. 957-1020, 1932) present a detailed, chronologic account of the Paleozoic history of this region where the geology of the folded and faulted pre-Pennsylvanian strata is largely concealed and very complicated.

Pacific Border.—The age of primary faulting in the Coast Ranges of California has been investigated by Bruce L. Clark (*Journ. Geol.*, vol. 40, pp. 385-401, 1932) who concludes that all the primary faults south of San Francisco Bay are pre-Cretaceous. In contrast, M. L. Hill (*ibid.*, pp. 535-556) interprets the faulting near Santa Barbara as a result of rotational stress enduring from late Pliocene to the present. These, however, are faults which Clark would presumably denominate as secondary. A

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geologic reconnaissance of the Denison Fork district, Alaska, by J. B. Mertie, Jr. (U. S. Geological Survey Bull. 827) marks the completion of the first stage in the project of mapping the vast area between the Yukon and Tanana rivers. Subsequent work by Federal geologists will be devoted to more detailed studies of the geology and mineralization of this portion of Alaska.

DYNAMIC GEOLOGY

Volcanism.—Howel Williams presents a comprehensive study of the history and character of volcanic domes (*Bull. Dept. Geol. Sciences, Univ. of Calif.*, vol. 21, pp. 51-146, 1932), inspired by field observations among the great dacit domes of Lassen Volcanic National Park, California, where the clustered domes are on an even grander scale than the puys of the Auvergne.

Stream Erosion.—There is still much confusion concerning the termi-

nology of stream classifications in spite of the classic work of W. M. Davis, and geomorphologists are therefore grateful to Douglas Johnson for his survey of "Streams and Their Significance" (*Jour. Geol.*, vol. 40, pp. 481-497, 1932). Here may be found clear-cut, precise terms by which to designate the various types of streams. A companion article by Emilie R. Zermitz (*Ibid.*, pp. 498-521) deals with the significance of drainage patterns and presents a detailed classification of these "keys to the landscape."

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EARTHQUAKES AND VOLCANOES

BY L. DON LEET

SEISMOLOGIST IN CHARGE, HARVARD SEISMOGRAPH STATION

EARTHQUAKES

Relative quiescence within the limits of the United States and possessions marked the earthquake record for the year following the last report. Damage was confined to a few cracked foundations, and there was no loss of life.

Central Region.—In the closing months of 1931, slight shocks were reported from El Paso, Tex., on Oct. 2; Nashville, Tenn., Nov. 27; Blytheville, Ark., Dec. 10; and Corinth, Miss., Dec. 16. The last-named was felt from Helena, Ark., on the west to Birmingham, Ala., on the east, and from Jackson, Miss., to Jackson, Tenn., south to north. It was reported as "the third and most severe felt in northern Mississippi in the past twenty years." In 1932, Akron, O., reported slight tremors on Jan. 21, and Corsicana, Tex., on April 9,

centering along the zone of the Balcones fault. On March 16, a two-hundred-ton dynamite blast in the Inland Lime & Stone Co.'s quarry at Manistique, Mich., was reported recorded on seismographs as far as 600 miles away.

Western Mountain Region.—Slight quakes were reported from Colstrip, Mont., on Jan. 9; Jackson, Wyo., Jan. 26; and Helena, Mont., Oct. 3.

Pacific Coast Region.—Chelan, Wash., reported a small quake on Sept. 18, 1932; the Pacific Ocean off the coast of Oregon was the center of one on Oct. 1; Seattle and western Washington, Dec. 31; Portland, Ore., and Vancouver, Washington, Jan. 14, 1932; north-central Washington, July 18; and Seattle, Wash., Aug. 6, the most violent in several years, but no damage done. California reported 81 minor shocks during the interval of

ECONOMIC GEOLOGY

this summary. All were local in character. Seward, Alaska, felt a slight quake on March 28. Managua, Nicaragua, the scene of the major disaster of March 31, 1931 (see 1931 AMERICAN YEAR BOOK) reported slight shocks on May 21 and Oct. 2.

Philippine Islands.—On July 18, Manila was shaken by a severe quake which centered off the Zambales coast in the China Sea, about 80 miles from Manila. On Aug. 25, Baguia, 200 miles north of Manila, was the center of another severe shock.

RESEARCH

Recent instrumental developments, under the leadership of the U. S. Coast & Geodetic Survey, have centered around strong-motion seismographs designed to give accurate records of ground motion near the center of an earthquake, for the information of engineers interested in the design of structures to resist earthquakes.

The present building code recorded by the National Board of Fire Underwriters (5th edition, revised 1931), under the heading of earthquakes, states, "forces to be resisted—such forces shall be assumed at the following percentages of the weight of the building or structure above the plane of application: 5% when the foundations rest on rock or hardpan; 7½% when they rest on soil whose bearing capacity is two tons per square foot, or over; 10% when they

rest on soil whose bearing capacity is less than two tons per square foot."

VOLCANOES

Hawaii.—Kilauea volcano, Hawaii, erupted violently after a severe earthquake shook the island on Dec. 23, 1931. The eruption began at 2:55 P. M. (local time) and set a number of fountains of flaming lava playing on the floor of the pit known as Halemaumau. It was described as the most severe since 1924, since which time similar eruptions have occurred on an average of once a year. Measurements at the Hawaiian Volcano Observatory had shown the ground was gradually tilting away from the pit prior to the eruption, indicating accumulating pressure. After the eruption it tilted suddenly inward toward the pit. The inflow of lava into the pit ended on Jan. 5, after having added some 115 feet of new material to its floor. The Hawaiian Volcano Observatory is accumulating data regarding seismic activity and ground tilting preceding such eruptions, which are making it possible to announce their approach.

Alaska.—On February 5, Joseph Nasenius, amateur radio operator at False Pass, Alaska, reported "shooting flames to a height of fifteen hundred feet, from an eruption of volcano Shishaldin, Unimak Island." This volcano was reported still in action Feb. 27.

ECONOMIC GEOLOGY

By DONNEL FOSTER HEWETT

UNITED STATES GEOLOGICAL SURVEY

RESEARCH

The progress of research in economic geology is largely recorded in scientific journals, the proceedings of several scientific and engineering societies and the publications of state and Federal geological surveys. The material published during the year is largely the record of work done during several recent years but it indi-

cates that thus far there is an increase of research work rather than a decline during the period of the depression.

GENESIS OF GOLD-BEARING QUARTZ

Several recent publications of the U. S. Geological Survey describe individual districts and record progress

in the solution of complex fundamental problems. To an increasing degree studies of metalliferous districts are concerned with precise mineral determinations, their paragenesis, the evidence of their zonal distribution, and the details of structural history because it is widely believed that these are essential to many practical problems that arise. The genesis of gold-bearing quartz veins has long been a puzzling problem and a recent study of the All-gshany district, California, by H. G. Ferguson (*Professional Paper* 172) yields interesting new conclusions. It is concluded that the principal veins occupy minor thrust faults and that the gold is relatively the latest mineral to be introduced. The rich shoots of gold are localized therefore by abrupt changes in dip and strike of the fractures. The history of the quartz which makes up the veins is shown to be very complex. Some evidence indicates that the silica, instead of having been deposited from solutions low in silica content, was introduced into the vein in a viscous, gelatinous or slushy state. There is also evidence of widespread recrystallization of quartz.

STATE DISTRICT REPORTS

Colorado.—The report on the Bonanza district, Colorado, by W. S. Burbank (*Professional Paper* 169) is the first major product of the co-operative study of a group of Colorado mining districts by geologists of the Federal Survey in cooperation with the State of Colorado and the Colorado Metal Mining Fund. It records in great detail the minerals of the veins, their paragenesis and zonal relations. Incidental to the study of the veins, the details of the structural features of the district were determined and the presence of several large thrust faults was proved.

Utah.—The Ophir and Mercur districts, Utah, are the principal mining areas of the Stockton and Fairfield quadrangles, the study of which has recently been published (*Professional Paper* 173, J. Gilluly). Although it records a comprehensive study of the stratified and igneous rocks, special

attention was given to the minute details of mineralogy both of the veins and areas of altered rocks and to the structural events recorded in the rocks.

Nevada.—The old district of Pioche, Nevada, which from 1869 to 1874 ranked next to the Comstock as a source of silver, has been studied by L. G. Westgate and A. Knopf (*Prof. Paper* 171, U. S. Geological Survey). The early sources of silver were veins in quartzite and granite porphyry in the central part of the district but in recent years interest is largely directed toward large bodies of mixed sulphide minerals that replace dolomite and limestone.

ORIGIN OF ORE MINERALS

The recent publication (*Economic Geology*, 1931) concerning "Criteria of Paragenesis," by a group of geologists under the auspices of the National Research Council, has led to a discussion of the problem. A related inquiry of broader scope is entitled "Microscopic criteria of hypogene and supergene origin of ore minerals" (G. M. Schwartz, *Economic Geology*, 1932).

The composition of the solutions from which metalliferous deposits have been laid down is a basic question in the chemistry of the process of their formation. Thus far the most dependable data have been derived from studies of the minerals deposited in the nearby wall rocks. Recent studies by M. J. Buerger (*American Mineralogist*, 1932) and W. H. Newhouse (*Economic Geology*, 1932), show that many sulphide minerals contain minute cavities which persistently yield chlorides of sodium and calcium. Their observations throw doubt upon the widely accepted modes of origin of some ore deposits.

PETROLEUM

The literature concerning petroleum reflects interest in the fundamental problems of the circumstances of its origin, migration, and accumulation as well as the physical and chemical properties of petroleum and gas that bear upon recovery. The confusion arising from excessive production at

ECONOMIC GEOGRAPHY

low prices is raising for debate many questions concerning the relation of the industry to the state and the possibilities of control. These problems and the substantial progress already made in their solution are summarized in *Report V* of the Federal Oil Conservation Board just issued.

The program of fundamental research in petroleum, sponsored from 1926 to 1931 by the American Petroleum Institute and the Universal Oil Products Company, which has borne fruit in the publication of about 160 short papers, is beginning to yield comprehensive summaries of the several projects, 79 in number. The American Petroleum Institute issued in June the summary of results to date of the two groups of projects; group 1 including those pertaining to the origin and recovery of petroleum, group 2 pertaining to the composition and properties of petroleum. One project of the first group has culminated in the publication (Gulf Publishing Company) of a book by P. D. Trask entitled *Origin and Environment of Source Sediments of Petroleum*. It records the results of close chemical, physical, and bio-

logical study of 2,000 samples of modern sediments collected from 150 regions throughout the world with particular reference to their possible bearing upon the older source sediments of petroleum.

In addition to the regular supply of papers contributed by individuals, the vigorous American Association of Petroleum Geologists published during the year the results of two symposia. The first on the occurrence of petroleum in igneous and metamorphic rocks yields conclusions that will be helpful in guiding explorations in such regions. The second on reservoirs in oil and gas pools, although it reviews conditions in only a few fields, emphasizes the changes that have taken place in a few recent years concerning the kind of data that are now needed for efficient exploitation. From the period of selfish individualism when hectic drilling yielded meagre data concerning the rocks and released enormous volumes of gas, the industry seems to be passing into another when the exploitation of an oil pool is regarded as a complicated engineering operation demanding cooperation of all owners.

ECONOMIC GEOGRAPHY

BY HELEN M. STRONG

CHIEF, GEOGRAPHIC SECTION, U. S. BUREAU OF FOREIGN AND
DOMESTIC COMMERCE

RESEARCH

Economic relations, adaptations, adjustments, and potentialities have pervaded essentially all major geographic research projects of American geographers for 1932. Field studies supplemented by library research have predominated, and have extended into every continent of the world. Human activities and their physical setting have been surveyed and analyzed in their mutual relationships. Through these economic geographic studies geographers are placing manufacturing and agricultural industry, commerce, trade, and

financial activities squarely on the ground in the physical setting which, directly or indirectly, to a greater or lesser degree, shapes and conditions every economic undertaking. This unobtrusive influence of the physical environment functions so quietly that its significance and potency too frequently have been overlooked.

SPECIFIC STUDIES

Urban.—Jefferson of Ypsilanti has analyzed urban areas in 1930, Thomas of Washington University is continuing his urban studies for St. Louis, and Case of Cincinnati in Cincinnati.

Irrigation.—In North Dakota, Simpson is working on ground water, so significant to this area of low precipitation, while Brown of Minnesota has made the first geographic interpretation of cultural development and potentialities in an irrigated region through field studies of the Belle Fourche irrigation project.

Field Work.—Renner of Washington (State) worked in the Ozark-Ouachita region, while the tundras of Alaska in relation to reindeer raising and the Olympic Peninsula engaged his colleague, Seemans. Clarence Jones of Clark made field studies in Puerto Rico and was visiting professor at the University there. He also collaborated in a revision of Dr. Semple's *American History and its Graphic Conditions*, preparing a *Laboratory Manual* to accompany it.

Economic and Physical.—Economic and physical characteristics of shore waters and the land-water were studied by the United States Coast and Geodetic Survey, and Johnson of Columbia. The Atwoods of Clark have worked in the San Juan mountains and the Rockies. Dicken from Minnesota, studied the karst lands of Central Florida to determine the varying qualities of the solution landscape and the changing phases of the cultural landscape. The Geographic Section of the Bureau of Foreign and Domestic Commerce at Washington has contributed several economic studies requested by business groups.

PIONEER SETTLEMENTS

There has been no more significant factor in American life than the American frontier. With the advancing pioneer, institutions evolved from varying physical characteristics of the frontier were woven into the fabric of American life. Two notable books on this subject were published by the American Geographical Society, which had their inception in plans fostered by Dr. Bowman, its director. The *Pioneer Fringe* by Bowman is a geographic interpretation of this ever moving, ever changing fringe of settlement in the United States, while in *Pioneer Settlement*, the com-

panion volume, specialists from ten countries present the varied problems of settlement upon the world's far-flung frontiers.

AMERICAN GEOGRAPHERS ABROAD

Ontario.—Field studies by American geographers outside the United States have been of great economic significance. Colby of Chicago made two traverses across southern Ontario revealing illuminating contrasts between the culture of the old Laurentian shield and that of the sedimentary lowlands.

China.—Orchard of Columbia, sponsored by the John Simon Guggenheim Memorial Foundation, for a second time was in China, investigating its present industrial organization and the prospects of further industrialization.

Japan.—Two geographers have been in Japan: Davis of Minnesota conducted field studies in the Hokkaido investigating results and success of Japanese colonization there and possibilities of population expansion; Trewartha of Wisconsin, under the joint auspices of the National Research Council and the University of Wisconsin made a second series of reconnaissance and detailed geographic field studies, the basis for his regional geography of Japan.

Other Regions.—Whitaker of Wisconsin has worked in Central Ontario, Martin of Washington (State) in Europe and North Africa; Peattie of Ohio State in the mountains of Europe, Hartshorne of Minnesota on the international boundary area in Upper Silesia.

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New England's Prospect, 1933, edited by Wright of the American Geographical Society is the economic geography of New England.

A volume, thirty years in preparation, appeared in 1932 under the joint auspices of the Carnegie Institution and the American Geographical Society. Although entitled *Atlas of the Historical Geography of the United States*, there has probably never been

issued a more valuable economic and geographic study of the United States.

The sheets of the Millionth Map of Hispanic America, issued this year by the American Geographical Society are contributions to economic geographic thought and material, as are the texts on Economic Geography by Huntington, Williams, and Van Valkenburg; the *Geography Yearbook* of The National Society for Study of Education; the *General College Geography* by Case and Bergsmark; the elementary texts by J. Russell Smith, and by Ellsworth Huntington. The "Key for Directed Studies" and "Directed Studies" which accompany the Colby-Foster textbook on *Economic Geography for Secondary Schools* are distinctly contributions to economic geographic thought, and offer a matured program for teaching geography at the secondary school level.

In this record of work in economic geography must also be included the studies, outstanding in character, contained in two American geographic journals: *Economic Geography*, and the *Geographical Review*.

NECROLOGY

Three geographers who have contributed inspiring personal and professional leadership finished their life span in 1932, but left enduring legacies in the field of economic geography. Dr. Ellen Churchill Semple, loved by her many students at the University of Chicago and Clark University, gave us *The Geography of the Mediterranean Region*, fruit of a life study.

To Dr. J. Paul Goode geographers of a generation both at the University of Chicago and elsewhere have given their deep affection. His new *Goode's School Atlas*, issued just before his death, combines the results of research in his chosen fields of economic geography and cartography.

When Dr. Albert Perry Brigham passed on this year, a gracious, beloved, and scholarly life rich in contribution to geographic thought and research was closed, but its influence continues in the Association of American Geographers which he helped found, and served for twelve years as its first secretary.

MINERALOGY

BY CLIFFORD FRONDEL

MEMBER, MINERALOGICAL SOCIETY OF AMERICA

GENERAL

Calaverite and the Law of Complication.—Recent years have seen the rapid development of a new generalization, first announced by Victor Goldschmidt in 1896, of fundamental importance in crystallography. The term "law of complication" has been applied to this conception in which the form system of a crystal is believed to be derived by the resolution and harmonic complication of the atomic forces in the crystal lattice. By means of this new and significant generalization the problem of the crystallography of calaverite, which has long defied complete solution by the traditional methods, has now been satisfactorily worked out.

A re-study of this mineral has shown that the entire form system is derived by harmonic complication from two principal forms of high but not irrational indices called singular nodes. That the law of complication can be applied in widely dissimilar fields is also shown by Professor Goldschmidt by an analysis of number series obtained in music, colour, and cosmic space.

Pseudomorphs.—Mineralogists have long been puzzled by the peculiar pseudomorphs associated with the zeolites that occur in the Triassic diabases of New Jersey. An extended study of these pseudomorphs has now been made by W. T. Schaller in *U. S. Geol. Survey Bull.* 832: "The

Crystal Cavities of The New Jersey Zeolite Region." Four general types of pseudomorphs are recognized: rectangular cavities after anhydrite, lamellar cavities after anhydrite, rhombic cavities after glauberite, and miscellaneous cavities after apophyllite and other minerals.

Mineral Nomenclature.—A report has been issued by the Committee on Nomenclature of the Mineralogical Society of America containing recommendations for the revision of many existing mineral names. International acceptance has been assured through the cooperation of foreign mineralogical societies.

Dana-Ford Textbook of Mineralogy.—An important addition to mineralogical literature comes with the publication of a new fourth edition of Dana's *Textbook of Mineralogy*, revised and enlarged by W. E. Ford (John Wiley and Sons). The rapid progress made by mineralogical science during the past decade is reflected in this standard text by a considerable expansion of text and the inclusion of many new topics. Briefly stated, the new material includes an important section on the atomic structure of crystals and its investigation by means of x -rays. Also a new section on the origin, association and mode of occurrence of minerals. The section dealing with the description of species has been thoroughly revised and includes the description of 220 well authenticated new minerals which have appeared in the literature since the third edition of 1922.

NEW MINERALS

Braggite.—The first new mineral to be discovered as a direct result of x -ray investigation is appropriately named braggite in honor of Sir William H. Bragg and his son, Professor N. L. Bragg, pioneers in the x -ray study of crystalline substances. Braggite is a sulfide of platinum and palladium with tetragonal crystallization, discovered in platinum ore from the Bushveld, Transvaal, associated with laurite and cooperite.

Ardealite.—A new hydrous phosphate and sulfate of calcium from a

phosphate earth deposit in the caves of Cioclovina, Roumania, occurring in yellow pulverulent masses. X -ray examination proves that ardealite is not a mixture of brushite and gypsum.

Clinoptilolite.—A re-examination of the mordenite-ptilolite group has shown that material from Wyoming previously referred to ptilolite (Pirsson, 1890) is a dimorphous, monoclinic form of that mineral and is entitled to species rank.

Ashtonite.—Preliminary notice of another new mineral belonging to the mordenite-ptilolite group has been made. Ashtonite occurs as white radiating masses in basalt near Penticton, British Columbia. Analysis shows a composition resembling that of mordenite.

Sanbornite.—The first simple barium silicate mineral to be discovered is described from Mariposa County, California, where it occurs as white cleavable grains in quartz. The rare barium minerals gillespite and celsian are associates. Sanbornite belongs to the triclinic system.

Wischnewite.—Found at Wischnewy Gory, Ural Mts., in miaskite pegmatite as an alteration product of nephelite. In composition wischnewite can be referred to the danvyite-cancrinite group and constitutes the sulfatic analogue of cancrinite. The crystallization is hexagonal.

Juanite.—From the San Juan Mts., Colorado, comes a new mineral occurring in white fibrous masses as an alteration product of melilite. Chemically juanite corresponds to a hydrated and soda poor melilite. Probably orthorhombic in crystallization.

Arsenoklasite.—A new hydrous manganese arsenate from the iron-manganese mines of Pajsberg, Sweden. Observed as red cleavable masses with sarkinite, which it closely resembles, in fissures in hausmannite. X -ray study shows the crystallization of arsenoklasite to be orthorhombic.

Legrandite.—Yellow monoclinic crystals incrusting sphalerite from Lampazos, Nuevo Leon, Mexico, prove to be a new basic arsenate of zinc. Here again an x -ray study was neces-

sary for the correct interpretation of the composition.

Glaucocerinite.—The famous locality at Laurion, Greece, has yielded a new complex basic sulfate containing zinc, aluminum, and copper. The mineral is found in sky-blue wax-like masses associated with adamite and gypsum.

Alleghanyite.—From Bald Knob, Alleghany County, North Carolina, comes an interesting manganese silicate somewhat similar in composition to tephroite. Alleghanyite is found as pink grains in calcite associated with the new spinel galaxite and other manganese minerals—orthorhombic in crystallization.

Galaxite.—A second new mineral from the manganese vein at Bald Knob, near Galax, North Carolina, is found to be a manganese member of the spinel group. Occurs as minute grains with a brilliant black color.

Bullfonteinite.—The Bullfontein diamond mine, Kimberly, South Africa, has yielded a new fluorine bearing hydrous calcium silicate which occurs as pink radial spherulites in diabase associated with awillite. The crystallization is triclinic.

PETROGRAPHY

Petrography of the Igneous Rocks.

—A notable event in the field of petrography during the present year is the publication of the first volume of *A Descriptive Petrography of the Igneous Rocks* by Albert Johannsen (Univ. of Chicago Press). Professor Johannsen is our leading authority in this field, and this and the forthcoming volume is assured of a hearty welcome by petrographers. The present volume contains a comprehensive treatment of the constitution, structures and textures of the igneous rocks. Many pages are devoted to a detailed discussion of the problem of rock classification. An extended glossary of textural terms and miscellaneous definitions is appended.

Accessory Minerals of Crystalline Rocks.—Announcement is made of a committee formed under the auspices of the National Research Council to stimulate and correlate research on the heavy minerals found in minor amounts in igneous and metamorphic rocks. It is hoped that such studies will develop a new method of investigation of magmatic differentiation and of correlation of comagmatic intrusives.

TERRESTRIAL MAGNETISM AND ELECTRICITY

BY JOHN A. FLEMING

CARNEGIE INSTITUTION OF WASHINGTON

The organizations intensively engaged in geomagnetic and geoelectric investigations in North and South America include the U. S. Coast and Geodetic Survey, Meteorological Service of Canada, Dominion Observatory of Canada and the Topographical Survey of the Department of the Interior, Meteorological Office of Argentina, National Observatory of Brazil, Meteorological Service of Chile, National Observatory of Mexico, and Department of Terrestrial Magnetism of the Carnegie Institution of Washington which is world-wide in its operations. There are

in addition in the United States a large number of organizations engaged less intensively in these fields. Among these may be mentioned the Alaska Agricultural College and School of Mines, Bell System of the American Telephone and Telegraph Company, Mount Wilson Observatory of the Carnegie Institution of Washington, Colorado School of Mines, Nebraska Wesleyan University, Ohio Wesleyan University, Tufts College, Massachusetts Institute of Technology, Smithsonian Institution, Stanford University, U. S. Bureau of Mines, U. S. Hydrographic Office,

U. S. Signal Corps, U. S. Naval Research Laboratory, and U. S. Bureau of Standards.

INTERNATIONAL POLAR YEAR

The realization of the International Polar Year program is probably the item of greatest importance in 1932. The program is devoted chiefly to terrestrial magnetism, atmospheric electricity including studies of aurora, earth-currents, investigations of the ionized regions of the upper atmosphere, and allied meteorological studies. Participation of the United States through operation of the College-Fairbanks station in Alaska, was provided by act of Congress appropriating \$30,000 authorized by the bill signed March 18, 1932 by President Hoover. This station is under the direction of the U. S. Coast and Geodetic Survey. The appropriation was not made available until July 1, 1932, but the buildings were constructed and instrumental equipment installed so that the complete program of continuous registration was begun October 1, 1932. A magnetic, auroral, and meteorological station was also established at Point Barrow, Alaska, through cooperation of the U. S. Weather Bureau and the Department of Terrestrial Magnetism. Four earth-current stations were also established in the United States by the American Telephone and Telegraph Company centering at Houlton, Me., New York City, Wyanet, Ill., and Tucson, Ariz. The Appalachian Mountain Club has also arranged for participation by auroral, radio, and meteorological work on Mount Washington during the present winter in cooperation with the Polar Year program. Four stations were established in Canada, three by the Canadian Meteorological Service at Chesterfield Inlet (in full operation from October 1), on Coronation Gulf in the Arctic Ocean and at Cape Hope's Advance on Hudson Strait, and one at Fort Rae by the British Meteorological Office which has been in operation from August 1. The University of Michigan has also established a meteorological and auroral station in Greenland. In South Amer-

ica the Brazilian Government has undertaken the establishment of a station in South Georgia, and Chile has promised to establish a station near the southern point of South America. In addition to these stations, the programs of observation at the Toronto and Meenook observatories of Canada, at the five observatories of the U. S. Coast and Geodetic Survey, at the Teoloyucan Observatory of Mexico, at the Vassouras Observatory in Brazil, at the Pilar, Orcadas, and La Quiaca Observatories of Argentina, and at the observatories of the Department of Terrestrial Magnetism at Huancayo, Peru, and Watheroo, Western Australia, will be amplified in connection with the requirements of the International Polar Year program. Thus assurance of additional data much needed in the polar regions for the extension of the spherical harmonic analyses of the Earth's magnetic field is given by these definite provisions made to participate in this program. The results will be further valuable in investigations of the magnetic secular-variation.

OBSERVATORIES AND SURVEYS

Observatories.—The five magnetic observatories of the U. S. Coast and Geodetic Survey at Cheltenham, Md., San Juan, Porto Rico, Tucson, Ariz., Sitka, Alaska, and Honolulu have continued in operation without serious interruption. Some improvements in instrumental equipment were made particularly with respect to temperature-control, and in the case of Sitka for the purpose of securing continuity of records during large magnetic storms. The magnetic, atmospheric-electric, earth-current, and meteorological programs at the Watheroo (Western Australia) and Huancayo (Peru) observatories, the atmospheric-electric program at the Washington (D. C.) Observatory, and the cooperative work in atmospheric electricity with the Apia (Western Samoa) Observatory and in atmospheric electricity and earth-currents at the Tucson Observatory were maintained by the Department of Terrestrial Magnetism. Registrations of variations of

magnetic declination and horizontal intensity were continued at Mount Wilson Observatory for the purpose of comparing solar and magnetic activity.

Standards.—The control of the provisional International Magnetic Standards of the Department of Terrestrial Magnetism has been further undertaken by that Department through intercomparisons between its standards and those of the U. S. Coast and Geodetic Survey at San Juan, Porto Rico; of the Brazilian National Observatory at Vassouras, Brazil; of the Argentine Meteorological Office at Pilar and La Quiaca, Argentina; of the Meteorological Service of Chile at Santiago, and of the Observatory at Lukiapang, China.

Surveys.—Only the U. S. Coast and Geodetic Survey and the Department of Terrestrial Magnetism of the Carnegie Institution of Washington undertook extensive magnetic surveys in 1932. The former reports extensive work within the United States and along the coasts of Hawaii, Alaska, and the Philippines. The latter executed two extensive expeditions covering South America for the purpose of bringing up to date the material for discussion of secular variation in the two Americas and also did some cooperative work in China and Africa. The U. S. Coast and Geodetic Survey made observations at an old magnetic station in Missouri to be used jointly by the Geological Surveys of Missouri and Illinois as a base-station for detailed magnetometric surveys designed to determine underground geological formations, including the location of water-bearing strata. Additional observations on ship and on shore were made by the Survey in the vicinity of Duke Island, Alaska, and these have further extended the area of marked local disturbance known to exist in that locality.

Instruments.—The question of temperature-control in magnetic instruments has received recognition as of great practical importance. At most of the observatories compensating-devices were installed on the magnetographs. This was an especial

feature of instruments specially devised for the Polar Year observations, and the Colorado School of Mines reported on a new system for field balances truly unaffected by temperature over a wide range and in fields of widely varying inclination. In the Department of Terrestrial Magnetism experimental work has been under way for the development of more accurate instruments for use on moving vessels at sea or in the air and also for the design of improved electromagnetic magnetometers.

Earth-currents.—Registrations were continued at Watheroo and Huancayo by the Department of Terrestrial Magnetism and, in cooperation with the U. S. Coast and Geodetic Survey, the Mountain States Telephone and Telegraph Company, and the American Telephone and Telegraph Company, similar work was carried on at Tucson, Arizona. Records of earth-potentials were continued by the Bell System at New York City and were initiated at Houlton, Me., and at Wyanet, Ill.

Atmospheric Electricity.—Observations of air-potential and air-conductivity were continued by the Department of Terrestrial Magnetism at Washington, D. C., at Watheroo, Western Australia, and at Huancayo, Peru. Cooperation was extended by that Department also to the Apia Observatory, Western Samoa, and to the Christchurch Observatory, New Zealand, to insure complete magnetic and electric programs there, as also to the Coast and Geodetic Survey in the obtaining of such records at Tucson. Continuous records of potential gradient are being made at Stanford University. Continuous records of space-charge are also being taken at two levels at Stanford University, one near the surface and the other 16 meters above the surface.

Ionization.—The Department of Terrestrial Magnetism has developed apparatus for continuously recording large positive ions. At the Naval Research Laboratory, E. O. Hulburt completed, as far as present data permit, the work on the ionization of the high atmospheric field giving ta-

bles of the ionization over the Earth. An intensive cosmic-ray survey was conducted at stations in North and South America by A. H. Compton of the University of Chicago with support through the Carnegie Corporation and the Carnegie Institution of Washington. The Massachusetts Institute of Technology has cooperated in this work, from which it is hoped to obtain information regarding ionization due to cosmic rays.

Aurorae.—Systematic observations of the height of aurorae have been continued by V. R. Fuller at the Alaska Agricultural College and School of Mines at College, Alaska, during the dark hours; this work has been made possible through the continued support of the Rockefeller Foundation. E. O. Hulburt at the Naval Research Laboratory, from examination of available records of aurorae, has substantiated Vegard's conclusion regarding frequency of the various forms during morning and evening hours.

Ionized Regions of the Upper Atmosphere.—Much work is being done in studying the behavior of the radial ceiling and its variations in apparent correlation with geophysical and other cosmical phenomena. The technique for measuring these heights was further developed in the use of the echo-method by the Bureau of Standards, and apparatus for continuously recording these heights is in construction by the Department of Terrestrial Magnetism in cooperation with the Bureau of Standards which it is planned that the Department will establish at its Huancayo and Watheroo observatories in Peru and Western Australia. The observational work at the Bureau of Standards in accordance with the Polar Year program is under way. Similar work is being done at Tufts College. Investigations by the Bell System seem to indicate that the height of the ionized regions over the Atlantic differ materially from that over the Pacific.

Earth-resistivity and Geophysical Prospecting.—The Colorado School of Mines reports the establishment of a lecture course on the use of various

magnetic and electric methods of prospecting. Considerable field work on electrical prospecting by the resistivity-method has already been done in Texas and Colorado. At the Massachusetts Institute of Technology a study has been made of equipotential prospecting with miniature models in the laboratory with gratifying results. Resistivity-surveys were made by the Bureau of Mines to correlate, if possible, oil and gas structures with resistivity-measurements, and simplified designs of geophysical apparatus are being constructed with a view to increasing the value of application of such apparatus by reducing the cost of manufacture.

DISCUSSIONS

Statistical investigations of accumulated observational material have been undertaken during the year in large number. In connection with these, the development of possible laboratory attack on problems in terrestrial magnetism and electricity has also been advanced.

Solar and Lunar Changes.—A large amount of attention was given to investigations on the relation of fluctuations in geomagnetic and geoelectric phenomena with solar and lunar changes. The investigation in the Department of Terrestrial Magnetism of magnetic correlations with solar conditions resulted in the conclusion that there must exist in the Sun's surface certain restricted areas designated as *M*-regions, the lifetime of which is limited (up to a year), though generally longer than that of sunspots. They cause terrestrial-magnetic disturbances very probably by emitting well-defined corpuscular streams. These solar regions as individuals escape the usual astrophysical means of observation (visual, photographic and spectrohelioscopic); they can as yet only be traced in terrestrial-magnetic activity. Terrestrial-magnetic records have therefore obtained a purely astrophysical interest beyond their well-known geophysical aspect, namely, the indication of the times when the Earth is

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actually under the influence of solar streams.

Diurnal Magnetic Variation.—The Department of Terrestrial Magnetism has under way the investigation of the diurnal magnetic variation on selected quiet days, the harmonic analyses of which will supplement from a different viewpoint the research into the variability of solar influences as indicated by magnetic activity.

Solar Radiation.—The Astrophysical Observatory of the Smithsonian Institution has continued the measurements of solar radiation in California and Chile, but the work at the station in Africa has been discontinued. The investigations by Abbot at the Institution of the data obtained have been continued in the endeavor to find definite periods of fluctuation. At the Perkins Observatory of the Ohio Wesleyan University, H. T. Stetson has continued the examination of radio reception to establish a correlation with lunar period. The investigations on periodicities in radio-transmission phenomena by G. W. Kenrick and G. W. Pickard show close agreement in the periodicities, an agreement which is considered of particular interest in view of the wide diversity of radio-transmission phenomena investigated and which apparently indicates the importance of both solar and lunar phenomena in radio transmission over a wide portion of the present radio spectrum.

RESEARCH

Problems in Magnetism.—In the Department of Terrestrial Magnetism much attention was given during 1932 to the characteristic features of terrestrial-magnetic research which are common to other branches of geophysical research in comparison with

those of laboratory physics. While the impossibility of keeping the relevant conditions of observation constant leads naturally to the use of statistical methods in geophysics, the policy adopted over 15 years ago of effecting laboratory approach to these problems finds increasing justification in the rapid development of physics and astrophysics. The attempt to provide a new means of attack in some of the most basic problems in magnetism by the development of artificial high-voltage sources of high-energy particles and radiations begun by the Department in 1926 was finally in 1932 brought to a point where the technical difficulties had been overcome and its development as a research tool had been largely completed.

A spherical harmonic analysis begun in the Department of Terrestrial Magnetism of the anomalous magnetic diurnal-variations of the western hemisphere indicates a current system of the upper atmosphere considerably different over that region from the idealized system in its most recent form proposed by S. Chapman. This analysis, which is being made from the magnetic diurnal-variations recorded at observatories situated near the 75th meridian west of Greenwich, accurately defines this system and maps its lines of flow.

Atmospheric Pollution.—In the discussion of atmospheric pollution and its relation to atmospheric ionization at the Department of Terrestrial Magnetism, it was found that in general the mobility of the large ion is greater than that found by other investigators. On the basis of the results it appears all condensation-nuclei are capable of becoming large ions.

METEOROLOGY AND CLIMATOLOGY

BY BURTON M. VARNEY

ASSOCIATE PROFESSOR, UNIVERSITY OF CALIFORNIA AT LOS ANGELES

INTERNATIONAL POLAR YEAR

In many respects the outstanding meteorological event of 1932 was the

participation by the United States Government and the Carnegie Institution of Washington in the activities

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of the Second International Polar Year. This "year" began Aug. 1 and will run over 13 months. It is organized by 33 nations to obtain as complete meteorological and other observations as is possible from various points in the Arctic and Antarctic regions. The Weather Bureau installed additional equipment at its Point Barrow, Alaska, station. Supplementing complete programs of surface meteorological observations at Barrow, Nome and Fairbanks, an intensive campaign of aerological flights by balloons is being carried forward at these stations, together with photographic observations of the aurora, simultaneously as far as practicable. An elaborate program of aerological flights, by airplane and by both sounding and pilot balloons is proceeding in the United States, a total of some 70 stations being engaged in various parts of the program. At an elevation of 6,288 feet on the summit of Mt. Washington, N. H., a party of three observers is carrying out a series of meteorological and other observations, maintaining contact with the Arctic stations by radio and reporting daily weather and magnetic data.

AVIATION METEOROLOGY AND CLIMATOLOGY

The need of aviation for speed in the dissemination of airways weather forecasts received increasing recognition. At New Orleans, for example, the functions of District Forecaster and Airways Forecaster have been separated in order to allow the former official more time to study the weather conditions of the district as a whole and the latter to concentrate on earlier issue of forecasts for the airways alone. Making of composite charts showing conditions for various levels up to 5,000 feet on one chart and for levels above 5,000 feet on another, greatly facilitated summarizing the wind and cloud structures important to the aviator. Compilation of weather statistics from airways reporting stations, on a scale that dwarfs all previous activities of this sort, was begun by the Weather Bureau Jan. 1. From all stations mak-

ing hourly and 3-hourly reports are now recorded the precipitation and obstructions to vision, height of lowest layer of clouds covering more than half of the sky, visibility based on easy identification of prominent objects, wind direction and velocity, air temperature, and temperature of the dew point. This vast assemblage of data relates to weather conditions along no less than 24,000 miles of airways, in a network so complete that the examination of atmospheric processes along almost any desired cross section in the United States will presently be feasible. The potential usefulness of such data is incalculable. Investigations at the Round Hill Research Station of the Massachusetts Institute of Technology have succeeded in measuring and photographing individual fog droplets. The particles that hinder flying and ocean travel were found to range from one twenty-five thousandth to 20 twenty-five thousandths of an inch (1 to 20 microns). Results of the investigation may bear on the problem of aviation fog signaling by means of penetrating lights colored variously according to size of fog particles.

INVESTIGATIONS OF CYCLONES AND ANTI-CYCLONES

Application of thermodynamics to the study of changes in, and interrelations of, air currents of diverse origins, continued to receive support from the Meteorological Course at the Massachusetts Institute of Technology. The outstanding contribution in this field for 1932 was Professor Rossby's "Thermodynamics Applied to Air Mass Analysis." The significance of this method of approach to the study of cyclones and anti-cyclones for the United States is made very clear as a result of this and other investigations. The Weather Bureau, for example, has long recognized that one of the most difficult problems confronting the forecaster has been that of estimating the direction and rate of travel of storm areas. Average rates and directions are well known, but the average values are rarely adhered to by the individual storm. The

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New Orleans office of the Bureau has added a valuable criterion to those already in use for estimating these values. On the maps of upper air wind directions, by connecting the arrows that show these directions plotted for various elevations, it is often possible to trace the upper air currents in their relations to the centers of low atmospheric pressure within which the storms occur. In general, it is found that if these centers with their more or less inflowing winds have vertical axes, the storms move slowly; when the axis is much inclined toward the front of the storm (that is, to the east or northeast) the movement is generally rapid in that direction; when the axis inclines backward toward some westerly point the storm tends to shift in that direction.

FOREST METEOROLOGY

Intensive study of forest-fire hazard as related to weather has continued to yield most encouraging results. Investigations by the New England Fire Weather Service of the Weather Bureau has made clear certain relationships between the degree of fire hazard and the size, speed, and direction of movement of areas of high atmospheric pressures (usually fine weather areas). Frequent changes of weather, induced by alternations of high and low pressure, tend to keep hazard at a minimum. The large, slow moving, sunny areas of high pressure tend to increase the hazard from day to day and often result in very dangerous dryness of the forest floor. Investigations by the Pacific Northwest Experiment Station at Portland have shown that lightning causes over half of the fires in the National Forests in Washington and Oregon and that two-thirds of these occur on about four days in each summer when the atmospheric pressure distribution has particularly favored an importation of moisture for thunderstorms. This concentration of hazard in periods of a few days makes an extremely difficult condition for fire-fighting forces to cope with. At the Priest River Forest Experiment Station in Idaho a long-standing question as to what extent the com-

plete or partial removal of dense virgin timber alters the local atmospheric conditions and those of the forest floor, is by way of being answered. Data obtained over a period of some eight years "indicate that if you remove the forest canopy, partially or completely, you raise the average maximum air temperature three to six and one-half degrees F., lower the mean 5:00 P. M. relative humidity six to nine per cent, increase the wind movement eight to 17 times, at least double the evaporation, increase the temperature of surface duff as much as 56 degrees F., and step up fire danger by reducing fuel moisture contents four or five per cent."

MARINE METEOROLOGY

Gulf Stream.—Two outstanding series of investigations continued to attack the problem of oceanic influence upon continental climates, a problem of such magnitude that only cooperative effort can achieve significant results. Clark University and the Woods Hole Oceanographic Institutions in Massachusetts are jointly carrying out the reduction and interpretation of data from seawater thermographs installed on several steamships operating in the western Atlantic Ocean. Their initial summary of results deals especially with the Gulf Stream. For the first time it has become possible to show on synoptic charts and in considerable detail the remarkable temperature characteristics of the Gulf Stream and its bordering waters. For the period January, 1929 to May, 1931, no less than 36 charts were drawn. A narrow and well defined band of warm water was characteristic of the Gulf Stream on each. The existence of the "cold wall," a zone of marked temperature contrasts along the northwestern side of the stream, has been long known; but this study now shows that while contrasts of 20° to 30° on opposite sides of the "wall" occur in late winter and early spring, these contrasts dwindle to an average of about 6° in late summer and early autumn. The hitherto neglected southeastern edge of the stream is now known to show contrasts of 2° to

3° across a similar sharp and always present "wall." Very remarkable is the fact that at the season of great temperature contrasts along the "cold wall," large, warm temporary projections of the main stream flow, sometimes for several weeks, into the cold water area, occasionally becoming detached and flowing parallel to the main stream but much nearer the coast. At very long intervals the detachments reach the shores of New England, to which fact may be ascribed the popular belief that the Gulf Stream itself sometimes moves in close to the land. To the water between the Gulf Stream and the coast these detachments give a very heterogeneous temperature-character. Large and rapid changes occur. In a single month 43° has been recorded. With respect to the influence of the Gulf Stream on the climate along our eastern seaboard, the tentative conclusion is reached that this influence is probably small due to the narrowness of the stream, but that the remarkable parallelism in time and amount between its temperature changes and those of the vast warm water area to the southeast will probably justify the use of Gulf Stream temperatures as an index to the more widespread and hence meteorologically more significant changes.

Pacific Coast.—For the region of the eastern Pacific Ocean the University of California's Scripps Institution of Oceanography has further refined and extended its methods of determining indices of seasonal precipitation over California and has tested certain methods of forecasting winter-season air temperature. The original index was the simple one of ocean surface temperature departures from normal for the period Aug. 1 to Oct. 15, off the coast of southern California, a plus departure showing high correlation with deficient rains in the following winter, a minimum temperature departure with seasonal excess of rain. Discovery of other factors in the complex of oceanic and atmospheric influences upon seasonal precipitation was to be expected. Correlation of water temperatures in a region some 200 miles southwest of

San Francisco with sun-spot numbers have yielded a precipitation index correct as to sign in about four-fifths of the 33 seasons. These indices prove more reliable for deficient rainfall than for excess. Less satisfactory results have been obtained by an application of the Spencer 21-term Rule for "smoothing" the rainfall of successive years to show trends. This method is better adapted to showing probable trends through a considerable period of years than for forecasting for a given year. Two types of rainfall oscillation are being applied to the study of California seasonal rainfall: the Brückner "cycle" varying from 22 to 33 years, and a 5 to 6 year oscillation in stream run-off that appears to be fairly synchronous over the Northern Hemisphere. A greatly improved thermometer was devised for observing temperatures of surface sea-water. The thermometer scale reads from 0° to 125° F., the bulb is cylindrical to give better sensitivity than spherical bulbs and the instrument is inclosed in light brass tubing with suitable apertures for reading the scale and for water circulation. A thick rubber ring at each end of the tube decreases the chances of breakage while stirring the water sample. An instrument of this type should do much to improve the quality of sea-temperature observation.

SOLAR RADIATION INVESTIGATIONS

Periodometer.—Continuing research by the Smithsonian Institution of Washington into the problem of solar variability made another important step forward during the year in the completion, by Dr. C. G. Abbott, of the "periodometer" for discovering and evaluating periodicities in long series of observations. The instrument, fundamentally different from a harmonic analyser, was so designed as to do this independent of any assumed mathematical expression for either the periods or their amplitudes. It evaluates the form of solar radiation intensity curves "as Nature fixed them." From the tangle of seemingly erratic variations the peri-

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odometer has resolved seven regular periodicities:—7, 8, 11, 21, 25, 45 and 68 months. Several of these periodicities appear to be closely related to the $11\frac{1}{4}$ -year average "period" in sun-spot numbers. Discovery of relationships between solar periodicities and terrestrial weather is one of the objectives of this research. Assuming, then, that solar radiation intensity does vary in seven superposed periods, a periodometric examination of temperature departures from normal at certain stations in the United States was carried out. This resulted in the evaluation for Washington, D. C., of periods of 8, $9\frac{1}{2}$, $13\frac{1}{2}$, 18, 25, 45 and 68 months. For Williston, N. D., periods of 7, 8, 11, $13\frac{1}{2}$, 18, 25, 28, 45 and 68 months were found.

Summary of Investigations.—Summarizing the results of these investigations before the National Academy of Science, Dr. Abbott said: "We

invite attention to the fact that a majority of the periodicities in terrestrial temperatures which we have found are identical in length with periodicities in solar variation. The sum of the maximum amplitudes of these periodicities which may be of solar causation is much greater than the sum of those which appear to be of terrestrial origin. In fact, if we make the hypothesis that a terrestrial temperature departure periodicity is of solar causation if it is of identical period with a solar periodicity, then we shall come to the result that nearly the whole magnitude of the ranges of terrestrial temperature departures from normal used in our analyses are due to variations of solar radiation. We do not venture to claim this important conclusion as yet. We intend to carry on the research much longer. But at least the investigation has decided promise."

OCEANOGRAPHY

By H. A. MARMER

UNITED STATES COAST AND GEODETIC SURVEY

ATLANTIC OCEAN

Ice Patrol and Cruises.—In March the Coast Guard resumed its annual ice patrol in the area of the Grand Banks of Newfoundland. In addition, three oceanographic cruises and dynamic surveys of the patrol area were made. A considerable percentage of the observed drifts of the bergs have been found to parallel rather closely the direction of the surface isotherms. Five bergs during this season drifted south of the tail of the Grand Banks and were watched until they disappeared. The drifts of four of these bergs agreed closely with the currents computed from dynamic considerations and also with the isotherm charts. The fifth berg was probably influenced by winds that caused it to drift in exactly the opposite direction from the computed currents. In July the patrol was discontinued.

Tide Observations and Hydrographic Surveys.—The Coast and Geodetic Survey carried on continuous tide observations at seventeen primary tide stations from Maine to Florida and completed a comprehensive tide and current survey of New York harbor. This latter survey was made in cooperation with the U. S. Army Engineers, and was an unemployment relief project, the funds for a large part of the personnel being furnished by the City of New York Employment Committee. The hydrographic survey of Georges Bank was completed, resulting in the mapping of 25,000 square miles of the ocean bottom of an important fishing area and one traversed by the principal transatlantic steamship routes. Of special interest was the discovery and development of a series of large submarine valleys along the edge of the Continental

Shelf. Some of these valleys have very steep slopes and cut back into the shelf for distances as great as twenty miles, and give the hundred-fathom curve an appearance entirely different from that heretofore depicted on charts.

The Woods Hole Oceanographic Institution made a number of cruises in its research ship *Atlantis*, along the coast from Nova Scotia to Brazil and out into the open sea to latitude 40° W. In these cruises observations on temperature, salinity, oxygen and phosphate content, and hydrogen ion concentration were made. The researches conducted by the Institution included studies on the thermal distribution and variation of the surface waters of the western North Atlantic, the dynamic circulation in the North Atlantic basin, the stress exerted by the wind on the surface of the ocean, the thermal interchange between sea and air, the sediments of the continental shelf, the distribution of bacteria in sea water, and the role of bacteria in the cycle of life in the sea.

PACIFIC OCEAN

Tide Observations and Hydrographic Surveys.—The Coast and Geodetic Survey maintained six primary tide stations in continuous operation along the coast from San Diego to Seattle, and two tide stations in Alaska. Hydrographic surveys were conducted by one ship off the coast of California, a feature of special interest of this survey being the discovery of a submarine valley and of a submarine mountain. Three ships continued surveys in Alaskan waters, and one ship in Hawaiian waters. Three naval vessels conducted surveys in the Gulf of Panama and in the Gulf of Nicoya.

The Scripps Institution of Oceanography conducted investigations on the calcium carbonate equilibrium in sea water, the seasonal variation of various substances concerned in the growth of plant life, the effects of optical stimuli upon the formation and destruction of melanin pigments in fishes, on the rôle played by micro-organisms in the productivity of the

sea, and on oceanic conditions in relation to the seasonal forecast of temperature and rainfall.

The Oceanographic Laboratories of the University of Washington conducted a study of the waters in the region of Puget Sound covering 5,000 miles in its research ship *Catalyst*. Determinations were made of the physical and chemical constituents in the water. Special studies on bottom forms of marine animals, on the distribution of diatoms and of light penetration in sea water were also made.

GENERAL

Meeting, Section of Oceanography.—The annual meeting of the Section of Oceanography of the American Geophysical Union was held in Washington April 29, 1932, and was devoted to a review of the progress and development of oceanography during the past year. Representatives from the Hydrographic Office, Coast and Geodetic Survey, Coast Guard, Woods Hole Oceanographic Institution, Scripps Institution of Oceanography, and scientists engaged in oceanographic research from other institutions presented papers outlining the work carried out and in progress at their respective institutions. In addition, the general meeting of the Union was devoted to a symposium on the application of geophysics to the study of ocean basins and margins. All these papers appeared in the *Transactions of the American Geophysical Union* published by the National Research Council in June, 1932.

Record Deep Sea Dive.—The deepest dive to date was made Sept. 22, 1932, by William Beebe and Otis Barton in a so-called bathysphere, eight miles south of Bermuda. The bathysphere with the two men in it reached a depth of 2,200 feet, practically half a mile. Dr. Beebe gives it as his opinion that "there is no doubt whatever of the possibility of thorough visual resolving of the inhabitants of this half-mile zone when the observer can spend hours instead of minutes at the windows of the bathysphere."

AMERICAN EXPLORATION

International Expedition to the Bahama Islands.—Under the above name and under the leadership of Prof. R. M. Fields, an expedition in which the U. S. Navy, the Coast and Geodetic Survey, and Princeton University cooperated, carried out gravity observations in the region of the Bahamas during the months of February and March, 1932, which included observations below the surface of the sea on board a submarine. In these latter observations the submarine covered some 4,000 miles and observed the gravity at 54 stations by means of the Meinesz multiple-pendulum apparatus. These observations developed the negative and posi-

tive gravity anomalies in this region, thus giving definite data for the interpretation of the forces in operation in the geologic formation of this area.

The National Research Council in July, 1932, issued a bulletin of some 580 pages entitled *Oceanography*, being the fifth volume in the series of the *Physics of the Earth*. This was written by a number of authorities in the various fields of oceanography with the purpose of giving "the reader, presumably a scientist but not a specialist in the subject, an idea of its present status together with a forward-looking summary of its outstanding problems."

AMERICAN EXPLORATION

BY ROBERT M. BROWN

PROFESSOR, RHODE ISLAND COLLEGE OF EDUCATION

TRANSOCEANIC FLIGHTS

Amelia Earhart.—The crossing of the oceans by plane, notwithstanding the heavy loss of life, attracts the aviator still. Amelia Earhart Putnam left the Teterboro Airport, Hahnemann Heights, N. J., at 2:15 P. M. (E. S. T.), May 19, and landed at Culmore, Northern Ireland, May 21, at 4:15 P. M. (E. S. T.) after stops at St. John, N. B., and Harbor Grace, Newfoundland. Mrs. Putnam covered a total distance of 3,136 miles in 22 hours, 53 minutes of flying time. The Atlantic distance was 2,026 miles which was accomplished at a speed of 129.5 miles per hour, establishing a speed record for this crossing.

Stanislaus F. Hausner left New York, June 3, heading for his native Poland, and for more than a week his fate was not known. On June 12, he was picked up, 65 miles from the coast of Spain, by a British tanker, after having floated on the ocean for about eight days.

James Mattern and Bennett Griffin, seeking to better the Post-Gatty record for around the world flight, left New York, July 5, stopped at Harbor Grace, and reached Berlin

the next day after a flying time of 29 hours 18 minutes, one hour behind the Post-Gatty flying time but 11 hours ahead of their elapsed time. After leaving Berlin they were reported overdue at Moscow, and were finally located near Borisov, Russia, about 50 miles from Minsk, where they had been forced down. The flight was abandoned at this place.

Capt. Wolfgang Von Gronau arrived in Montreal, July 26, from the German North Sea coast. Leaving the Isle of Sylt July 22, the Captain's itinerary included Iceland, Greenland, and Labrador. His object was the blazing of a mail route between Europe and the Pacific Coast of North America. With his three companions he has continued on a leisurely journey around the world; on September 4 he arrived at Tokyo, and on October 3 he was in Borneo.

Lee-Bochkon and Solberg-Peterson. On August 23, Clyde Lee and John Bochkon left Vermont and on the same day Thor Solberg and Carl Peterson left New York with Oslo as their destination. On August 24 the Vermont plane landed safely at Harbor Grace, Newfoundland,

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but the New York plane was wrecked in the waters off the sparsely settled community of Darby's Harbor, Placentia Bay, Newfoundland. Lee and Bochkon left Harbor Grace August 25 and they have not been heard from since.

Mollison.—On August 19, Capt. J. A. Mollison reached New Brunswick and completed a westward crossing of the Atlantic by plane. The flight was from Portmarnock, Irish Free State, and lasted 30 hours and 20 minutes. Physical exhaustion and shortage of gasoline combined prevented him from reaching New York.

Other Flights.—On September 13 Dr. Leon Pisculli, Miss Edna Newcomer, and Pilot William Ulbrich attempted a flight from New York to Rome and were lost at sea. Finally on September 23, a Japanese air plane having for its destination Nome, Alaska, left Sabishiro Beach, Japan, under the pilotage of Eiichi Baba and carrying two companions. After being sighted a number of times, the party was finally lost in the vicinity of the Kurile Islands.

FIELD MUSEUM OF NATURAL HISTORY

Kish.—The Field Museum Oxford-University Joint Expedition to Mesopotamia conducted its tenth season of excavations on the site of the ancient city of Kish. Following up the discovery of two royal palaces of a dynasty of Persian kings in 1931, the expedition this year uncovered the ruins of a third Sassanian palace. An outstanding feature in the third palace is a great swimming pool with a practically modern circulatory water system. This is approximately 1,500 years old. The palace has been identified as belonging to Bahram Gor, who was mentioned by Omar Khayyam. In the palace were obtained fine collections of pottery, sculptures, jewelry, etc. Work was also continued on the excavation of the ruins of earlier occupations of Kish by the Sumerians and others, dating as far back as 5,500 years. The whole of the west side of Nebuchadnezzar's temple has been exposed. A tablet, about 4,000 years old, inscribed with

some fifty of the heretofore missing lines of the famous epic of Gilgamesh, oldest adventure narrative in the world and one of the most important literary products of ancient Babylon, was discovered. Near to Kish a mound was found, preliminary investigation of which indicates it may be a part of the lost capital of Sargon's ancient empire of Agade.

China.—The Marshall Field Zoological Expedition to China has successfully completed its two years of scientific collecting in the interior of China, and its leader, Floyd T. Smith, of New York, is now in Shanghai preparing to send the final shipment of some 5,000 specimens to Field Museum of Natural History and to return home himself. Several thousand specimens have been received at the museum in previous shipments from the expedition. Of special interest among the collections are several fine specimens of the rare takin, curious goat-antelope of the mountains along the Tibetan border. The expedition made, it is said, probably the most systematic zoological survey ever attempted in China.

French Indo-China.—Field Museum shared in a zoological expedition to French Indo-China, led by Jean Delacour, well-known French Zoologist. The Museum's participation was sponsored by the late William V. Kelley of Chicago. Large collections of birds and mammals were made in little known regions of the province of Laos.

Venezuela.—The Mandel-Field Museum Zoological Expedition to Venezuela, sponsored by Leon Mandel II and Fred L. Mandel, Jr., of Chicago, sailed to Venezuela, aboard Leon Mandel's yacht "Buccaneer." Emmet R. Blake, a zoologist of the University of Pittsburgh, was a member of the party. Extensive collecting of birds, mammals, reptiles and amphibians were made along the Orinoco River, and in the easternmost part of the Andes which has a distinctive mountain fauna.

AMERICAN MUSEUM OF NATURAL HISTORY

Venezuela.—Gilbert Ottley and Curator H. E. Anthony of the Ottley-

Anthony Venezuela Expedition left New York early in January, 1932, on a short trip to northern Venezuela to make a collection of mammals chiefly in the Merida district. This is a mountain area running up to the line of perpetual snow, and important biologically because it is a type locality for a number of species. It is hoped that the collections may serve as a basis for later study. The party was equipped with tents and pack train. They returned to New York on March 2, 1932.

Mexico.—Dr. George C. Vaillant returned from Mexico early in May. He visited the pyramid site of San Juan Tectihuacan, studying the sequential dating based on pottery, in an attempt to establish the origin of Tectihuacan civilization. He not only discovered three periods here, but also a new culture, that of Mazupan, which was defined and dated as post-Tectihuacan, and pre-Aztec.

Indo-China.—T. Donald Carter accompanied Mr. and Mrs. Legondre on an expedition to Indo-China to collect birds and mammals, since the Museum's collections from that part of the world are very small. On March 16, they reached Saigon, completing a six months' tour, on which the entire length of Indo-China was traversed three times, and over two thousand miles covered. Collections were made from every province. Three hundred and eighty-four mammals were acquired, and three hundred and eighty-two birds.

Shapiro.—After a six-month trip to the Orient, Dr. H. L. Shapiro returned to New York on March 9. He spent some time in Hawaii making race mixture and genetic studies among the Chinese-Hawaiian and Japanese-Hawaiian population. He went from there to Japan to make a study of pure Japanese race in contrast to the Japanese-Hawaiian mixture. He then went to China to study a group of Chinese. On his return home he also visited the Federated Malay States to study the Semang pygmies there.

Bennett.—On March 12 Dr. Wendell C. Bennett with John G. Phillips, sailed for Bolivia to make a survey

of antiquities in the Bolivian highlands in an endeavor to supplement the splendid collections of Bandelier Bolivian material now in the Museum. Dr. Bennett has reported the trip as highly satisfactory, more than 43 ruins having been examined and studied. Many of the ruins have been completely photographed from the air. A large number of old Inca houses were found still intact.

THE POLAR YEAR

Work Plans.—On the 50th anniversary of the first polar year of 1882-83, the Government has announced plans for an Arctic expedition to study radio weather and magnetism in cooperation with thirty-three other nations. This second polar year will last from August 1, 1932 to August 31, 1933. With an appropriation by Congress of \$30,000, a station was established at the Alaska Agricultural College and School of Mines near Fairbanks. The plan for work at the College-Fairbanks station includes magnetic, atmospheric electricity, earth currents, radio transmission and auroral observations, and in the vicinity there will be meteorological, including upper air, observations.

Peary Monument.—The Michigan Pan-American Airways Expedition, the fifth Greenland Expedition of the University of Michigan, sailed from New York on the schooner *Morrissey*, Capt. R. A. Bartlett, bound for Cape York in Northwest Greenland, to erect a monument to Admiral Robert E. Peary. The monument will be unveiled by Mrs. Marie Stafford (Ah-nighito, The Snow Baby) daughter of Admiral Peary, on an eminence of about 1,600 feet, visible in clear weather from all seaward points, capped by rust-proof metal that will catch and reflect the Arctic sun. The party will then establish a base on the neck of Upper Nugsuak peninsula in latitude 42° N. Meteorological, glaciological, and geological work will be carried on through the Second International Polar Year.

Stations.—For this Polar Year it is expected that about 100 stations will be established; 40 stations will be located in the Arctic north of the 55th

parallel, a few will be in the Antarctic, and the remainder will be scattered over the warmer parts of the earth. While the Northern Stations were scheduled to begin operations in August of this year, those in the far south will wait until summer comes to that part of the world, and January has been set as the opening month.

Mount Washington Observation.—In New England, Mount Washington will be occupied by three observers from October 15 to June 15, 1933, and at the Pinkham Notch headquarters Camp of the Appalachian Mountain Club, weather and other observations will be made regularly during the winter to provide a basis of comparison for the observations made on the Mount Washington summit.

SMITHSONIAN INSTITUTION

Moore Expedition.—Mr. and Mrs. A. F. Moore returned from twenty months of observation of atmospheric conditions above high mountains in the Cape Verde Islands in Southwest Africa and in the Sinai Peninsula. These observations were undertaken, under a grant from a friend of the Institution, for the purpose of finding a site for solar radiation observations in the Eastern Hemisphere equal to Mt. Montezuma, Chile. After more than one hundred days on Mt. Saint Katherine, on the Sinai Peninsula, 8,600 feet elevation, Mr. Moore made a favorable report of its conditions. It is expected to establish there a co-operating solar radiation observatory.

Latin-America.—Seven members of the privately financed exploration and filming expedition to Colombia and Ecuador, known as the Latin-American Expedition, Inc., sailed September 26, for Panama on the Grace liner *Santa Maria*, for seven months' intensive research, with Dr. Matthew W. Stirling as chief of the scientific division. Dr. Stirling is to conduct an investigation at the head waters of the Magdalena River of the ancient monoliths, which he believes may furnish a clue to the riddle of the migration of the early peoples in the Western Hemisphere. It is also planned to explore the Napo River in Ecuador and to study the habits of the Jivaro

Indians, who are known as head hunters. Dr. Stirling completed in March an 800-mile trip on a raft on the Yangtze, Santiago, Marañon, and Amazon rivers. He was making ethnological studies and collections among the Jivaro Indians of Eastern Ecuador.

NATIONAL GEOGRAPHIC SOCIETY

Citroen-Haardt Expedition.—The field work of the National Geographic Society during 1932 included the concluding chapters of the Citroen-Haardt Trans-Asiatic Expedition, in which Dr. Maynard Owen Williams participated as the representative of the National Geographic Society, and the National Geographic Society Eclipse Expedition, with the Army Air Corps cooperating. The Citroen-Haardt Trans-Asiatic Expedition successfully reached Peiping on February 12, 1932. In 314½ days, the party, led by M. Georges-Marie Haardt, won its way from the Mediterranean to the Yellow Sea along a 7,370-mile trail, all but 70 miles of which (from Nomal, near Gilgit, to Aqsu) was made by track-type motor cars. The "Pamir Group," coming from Beyrouth, joined with the "China Group" at Aqsu on October 8, 1931. Each group numbered about 30 men and 11 men made the entire trip, among them the Staff Representative of the National Geographic Society, Dr. Maynard Owen Williams, who was made Chevalier of the Legion of Honor at the Expedition's arrival in Peiping. Important studies were made in geology, botany, zoology, and archeology. Complete photographic and sound-motion-picture records were made. The Expedition moved fifty tons of men and equipment across Asia, the first party to follow the Marco Polo trail since the Middle Ages.

Eclipse Expedition.—The Eclipse Expedition observed the 1932 total eclipse of the sun both from the ground and from the air and secured the first photographs of the moon's shadow from a high altitude. The ground party included Albert H. Bumstead, Chief of the Cartographic Department of the Society and the in-

ventor of the sun compass which helped pilot Admiral Richard E. Byrd to the Poles; Charles Martin, Chief of the Society's Photographic Laboratories; and J. R. Hildebrand, Chief of School Service. The ground work was concerned particularly with the making of color photographs of the direct eclipse phenomena, for which Mr. Martin had developed special screens and emulsions that have advanced greatly the art of rapid color photography. The ground party gathered at Mount Black Cap, North Conway, New Hampshire. In spite of light, broken clouds, the corona was visible from the party's site on the 2,370-foot summit of Black Cap, and the battery of cameras, some with telescopic lenses, was kept busy throughout totality. Capt. Albert W. Stevens and Lieut. Charles D. McAllister, in charge of aerial photographic work for the eclipse, flew three miles higher than any other plane observing the eclipse and more than five miles above the earth. They watched for a great distance the spectacle of the dark shadow of the moon moving at approximately thirty miles a minute over the tops of clouds that were two miles above the earth and three miles beneath the aviators. Capt. Stevens found that the cloud masses formed an admirable screen for the shadow. With a short-focus, wide-angle lens, Capt. Stevens made exposures of the approaching shadow at five-second intervals. He reported that at totality the entire corona suddenly sprang into sight very much as if someone had snapped an electric switch. Capt. Stevens also carried an apparatus for measuring the intensity of cosmic rays, consisting of a very sensitive electroscope and a device for recording its readings photographically. This instrument was started twenty minutes before totality.

THE HIMALAYAS

The Yale North India Expedition, which is participated in by the American Geographical Society, is carrying out a comprehensive program, includ-

ing biographical, ethnological and geographical investigations in the regions north and south of the western Himalayas. The geographical work will include the mapping of many hundreds of square miles of unexplored country north of the Himalayas in the eastern Karakorum region. Surveys indicate the geologically recent origin of the southern Himalayan range and though contemporary with strata laid down during the Ice Age in Europe and North America, they are here folded and dislocated by the great pressure of mountain making. The director of the expedition is Professor Hellmut de Terra.

The Himalayas are further the objective of other expeditions. Under the sponsorship of the Explorer's Club of New York and the directorship of Gene Lamb, a party of scientists left New York in November, 1931, for a two years' study along many lines. A German-American expedition is attempting the ascent of Nanga Parbat, 26,629 feet in the Kashmir Himalayas. The American members are Elizabeth Knowlton of Boston and Rand Herron of New York.

BEEBE IN BERMUDA

Dr. William Beebe of the New York Zoological Society left in August for Bermuda on his fifteenth expedition of the Tropical Research Department. In September, in a new bathysphere, he descended 2,200 feet eight miles off Nonsuch Island south of Bermuda. Between 1,700 and 2,200 feet the following interesting phenomena were reported: "an unexpected abundance of fish, of large sized crustacea and other invertebrates; the visibility of many of their own lights; the large size and complete lack of halation of the individual illuminants; the sequence of abundance as regards color of lights, pale greenish, pale bluish and pale rosy; brilliantly illuminated fish up to six feet in length; and finally, the swiftness of movement of all visible organisms except, of course, plankton."

CARTOGRAPHY

BY W. L. G. JOERG

RESEARCH EDITOR, AMERICAN GEOGRAPHICAL SOCIETY

HISTORICAL ATLASES

Historical Geography of the United States.—The outstanding American cartographic publication of the year is the fundamental *Atlas of the Historical Geography of the United States* by C. O. Paullin, edited by J. K. Wright (published jointly by the Carnegie Institution of Washington and the American Geographical Society of New York, 1932). In no less than 620 maps on 166 plates (accompanied by 145 pages of text) are set forth, in so far as they lend themselves to map representation, most of the "essential facts of geography and history that condition and explain the development of the United States." These deal with the natural environment, the history of cartography, Indians, early explorations, land occupation, territorial development, population distribution and composition, colleges and churches, boundary disputes, votes in presidential elections and on important Congressional measures, manufacturing industries, transportation, agriculture, foreign commerce, distribution of wealth, and military history. To quote from the Introduction, the atlas is "probably the most comprehensive work of its kind that has yet been published for any country" and it promises to "be a dynamic force in historical and geographical studies in this country for many years to come."

George Washington Atlas.—A work peculiarly felicitous in content and execution is cartography's contribution to the two-hundredth anniversary of the birth of the Father of his Country. *The George Washington Atlas*, prepared and published by the George Washington Bicentennial Commission, of which Albert Bushnell Hart was historian, and edited by Colonel Lawrence Martin, Chief of the Division of Maps of the Library of Congress, with the coöperation of geographical and regional committees,

consists half of facsimiles of manuscript maps made by Washington himself, many hitherto unpublished, and half of the maps compiled for this atlas showing in detail Washington's routes of travel in war and peace, places visited by him or associated with his life, etc.

Ptolemy's Geography.—The first complete translation in any modern language of Claudius Ptolemy's *Geography* (circa 150 A.D.) has been made by Dr. Edward Luther Stevenson and published in a sumptuous volume by the New York Public Library (1932). A facsimile reproduction of Ptolemy's atlas of 27 maps from the *Codex Ebnerianus* now belonging to that library forms part of the volume.

EDUCATIONAL MAPS

Wall Maps.—Among recent school wall maps an excellent innovation is made by a physical map of Pennsylvania and New Jersey, 1:500,000 (Denoyer-Geppert, Chicago, 1932). On it relief is represented by shading in addition to altitude tints,—a method which satisfactorily represents the two elements involved in relief, absolute elevation and relative slope. But this method calls for a special drafting and engraving skill, to secure which the publishers had to go abroad; the map is printed in Switzerland. The plastic effect produced by this method is emphasized by a comparison with the same publishers' physical wall map of New York State, 1:500,000 (with rainfall and population density insets), on which relief is represented by altitude tints alone (see similar map mentioned in *THE AMERICAN YEAR BOOK*, 1931, p. 705). The rôle played by geography in the social sciences is well illustrated by R. O. Hughes's *American Citizenship Charts* (A. J. Nystrom, Chicago, 1930), a series of 20 wall charts for courses in civics and economics, on which many of the data,—population

growth, natural resources, transportation, industries, presidential elections, etc.—are shown on maps.

School Atlases.—A new, much enlarged edition of Professor J. Paul Goode's *School Atlas* (Rand McNally Co., Chicago, 1932; 174 pp. as against 96 pp. in the first, 1923, edition—See *THE AMERICAN YEAR BOOK*, 1925, p. 879) has appeared as the culmination of his life work (Professor Goode died Aug. 5, 1932). This is the first modern school atlas wholly of American manufacture. In the meantime two American adaptations of British-printed atlases have been published; Appleton's *Modern School Atlas* and Appleton's *Standard School Atlas* (D. Appleton's *Modern School Atlas* and 1932; maps engraved by George Philip, London).

POLAR MAPS

Byrd Expedition.—Definitive maps have appeared incorporating the work of the Byrd Antarctic Expedition of 1928-30; these supersede the preliminary map in Byrd's *Little America* mentioned in *THE AMERICAN YEAR BOOK* for 1930 (p. 662). The regions traversed on the flight to the South Pole, Nov. 29, 1929 (1:4,000,000), and on the flight northeast from Little America, Dec. 5, 1929 (1:2,000,000), are shown as insets on a map of the Antarctic in the October, 1932, *National Geographic Magazine*. Many new names, hitherto unpublished, appear on these insets. The most important map is a detailed map, 1:500,000, with contours and ice shading, of the dissected scarp front of the South Polar Plateau previously termed by Amundsen the Queen Maud Mountains (*Geogr. Rev.*, April, 1931). It is the first adequate map of the system of enormous glaciers debouching from the ice cap of the plateau to the Ross Shelf Ice at its foot. The map was plotted mainly from air photographs by a new method devised by O. M. Miller of the American Geographical Society's School of Surveying (see his paper "Planetabling from the Air," *ibid.*). The series of echo soundings made by Byrd's vessel, *City of New York*, between New Zealand and Little America are shown

in 1:12,000,000 on Plate 2 of *The Work of the Byrd Antarctic Expedition, 1928-1930*, by W. L. G. Joerg (Amer. Geogr. Soc., New York, 1930).

Other Maps.—Two other important polar maps of recent American origin are the revised and reduced edition (to 1:25,000,000) of the American Geographical Society's standard bathymetric map of the Antarctic (*Geogr. Rev.*, Jan., 1932; earlier edition, see *THE AMERICAN YEAR BOOK*, 1930, pp. 661-662). This edition also shows the route and discoveries of the *Norvegia* Antarctic expedition of 1930-31. Striking proof of the validity of the greater part of the discoveries of Lieutenant Charles Wilkes, U. S. N., in 1840 along 1,800 miles of the coast of the Antarctic Continent opposite Australia,—a validity usually challenged by British polar explorers following the lead of Sir James Clark Ross and Sir Clements Markham—is afforded by a map by Professor W. H. Hobbs, 1:3,350,000, which consists of a facsimile of Wilke's original chart on which are superimposed the discoveries of later expeditions, the main confirmation being supplied by those of Sir Douglas Mawson in 1911-14 and 1930-31.

MAPS IN 1:1,000,000

International Map of the World.—Since the last two reports (*THE AMERICAN YEAR BOOK*, 1928, p. 669; 1930, pp. 660-661), which the reader should consult as to the significance of this series and that discussed next, 11 new sheets have appeared: in Europe, S-33-34 (Björnöya), R-32-33 (Harstad), N-33 (Berlin), N-35 (Wilno), K-31 (Pyrenées Orientales; first issued in 1924 with hypsometry in French territory only); in Africa, H-35 (Alexandria), G-35 (Dakhla), G-36 (Aswan); in Asia, J-38 (Tabriz); in Australasia, I-55 (Canberra) and L-59 (Dunedin). The Canberra sheet and the three contiguous sheets previously listed cover the area south of latitude 32°S and east of longitude 144°E,—most of New South Wales and Victoria, and constitute the first adequate physical map of this important territory.

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Map of Latin America.—This fundamental series being published by the American Geographical Society of New York has progressed rapidly since the last report (*THE AMERICAN YEAR BOOK*, 1928, p. 669). The following 21 new sheets bring the published total to 44 sheets completed out of an ultimate total of about 100 sheets: North F-14 (San Luis Potosí), B-21 (Georgetown), A-21 (Alto Trombetas); South A-20 (Manaos), A-21 (Santarem), A-22 (Pará), A-23 (São Luiz), B-20 (Rio Purús), B-22 (Rio Araguaya), C-20 (Rio Madeira), C-22 (Rio Tocantins), D-20 (Rio Guaporé), D-21 (Cuyabá), E-21 (Corumbá), J-18 (Concepción), J-19 (Parral-Neuquén), K-18 (Isla Chiloë), K-19 (Lago Nahuel Huapí), L-19 (Comodoro Rivadavia), M-19 (Santa Cruz), N-19 (Tierra del Fuego; includes land part of N-18 and N-20). To facilitate locating sheets by letter and number the reader may be reminded that, in this series as in the International Map of the World, each sheet extends over 4° of latitude and 6° of longitude; letters designate the latitudinal strips, beginning at the equator, and extending toward both poles; numbers designate the longitudinal columns, beginning at the 180th meridian and increasing eastward.

DIVISION XX

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

AMERICAN ASSN. OF PETROLEUM GEOLOGISTS, Box 1852, Tulsa, Okla.	PHERS, University of Minnesota, Minneapolis, Minn.
AMERICAN GEOGRAPHICAL SOCIETY, Broadway at 156th St., New York City.	EXPLORERS CLUB, 544 Cathedral Parkway, New York City.
AMERICAN METEOROLOGICAL SOCIETY, Clark University, Worcester, Mass.	GEOLOGICAL SOCIETY OF AMERICA, Columbia University, New York City.
APPALACHIAN MOUNTAIN CLUB, 5 Joy St., Boston, Mass.	NATIONAL GEOGRAPHIC SOCIETY, Washington, D. C.
ASSOCIATION OF AMERICAN GEOGRAPHERS, University of Minnesota, Minneapolis, Minn.	SEISMOLOGICAL SOCIETY OF AMERICA, Clark University, Worcester, Mass.
	SOCIETY OF ECONOMIC GEOLOGISTS.

DIVISION XXI

CHEMISTRY AND PHYSICS

INORGANIC AND PHYSICAL CHEMISTRY

BY HUGH S. TAYLOR

PROFESSOR, PRINCETON UNIVERSITY

ISOTOPES AND ATOMIC NUCLEI

General.—Physicists for two decades or more have been accustomed to the fate that overwhelms those who imagine, as did many physicists of the 90's, that the science was practically a completed subject. Something of the same fate must obtain with those conservative chemists who trusted unquestioningly in the finality of the 19th century achievements of the chemist on the basis of Dalton's atom theory. In the matter of the elementary nature of hydrogen the swift developments of these last years must be, to them, a bewildering revelation.

The Hydrogen Isotope H^2 .—The discovery three years ago of the two molecular forms of hydrogen,—ortho- and para-hydrogen—has now been followed by the discovery by Urey, Brickwedde and Murphy (*Phys. Rev.*, 40, 1, 1932) of an isotope of atomic hydrogen of mass 2 in addition to the ordinary form of mass 1. Some of the consequences of this discovery are, at first consideration, almost fantastic. Thus, we may have molecular hydrogen H_2^2 of the same mass as helium. Naturally this modification will be much less common than H^1H^2 since the isotope of mass 2 is present in ordinary hydrogen to a very minor extent,—approximately 1 part in about 30,000. The isotope was discovered by means of the line spectrum of H^2 which appears as a faint companion of the ordinary spectrum of H^1 . Subsequent search showed that the heavier isotope was present in

more concentrated form in water which had been subjected to prolonged electrolysis, for example, the residual water in electrolytic hydrogen-oxygen cells. Experiments in progress at the U. S. Bureau of Standards under Washburn seek the production of H^2 -rich water by this means. An amusing consequence of such a concentration would be a water with a relative density as high theoretically as $\frac{4 + 16}{2 + 16} = 1.11$. Water with densities tending towards such values have already been secured by Washburn and his associates. The reason for enrichment by electrolysis is at present obscure and worthy of study. The mass of the heavier isotope has been studied by Bainbridge (*Phys. Rev.*, 41, 115, 1932; 42, 1, 1932) using the mass spectrograph, and by Hardy, Barker and Dennison (*Phys. Rev.*, 42, 279, 1932) from the infra red spectrum of the hydrogen chloride gas H^2Cl obtained from the heavier isotope. It is found that the isotope has a mass $H^2 = 2.01367 \pm 0.00010$ with a mass defect of 0.00189 ± 0.00010 , both expressed relative to the mass of $H^1 = 1.00778$.

Nuclear Structure of H^2 .—The structure of the nucleus of H^2 offers two interesting possibilities in view of the discovery, during the present year, of the neutron by Chadwick, in Cambridge, England (*Proc. Roy. Soc.*, 136A, 692, 1932). If the nucleus is composed of two protons and an electron it can be calculated that its

energy of binding will be approximately 2×10^6 electron volts. If composed of one proton and one neutron of mass 1.0067 the binding energy would be 9.7×10^6 electron-volts. More concentrated samples of H^2 are being sought to permit a distinction between the two suggested structures.

Modifications of Molecular Hydrogen.—This search will also facilitate a determination of the spin of the H^2 nuclei in H_2^2 . Should the H^2 nuclei in the molecule possess a spin then there will be possible ortho- and para-modifications of H_2^2 just as there are modifications of H_2^1 . H^1H^2 will not show the ortho-para-modifications as the nuclear masses are unequal. These considerations show that there are certainly four and possibly five modifications of molecular hydrogen, o - and p - H_2^1 , H^1H^2 , and H_2^2 , this last with possibly o - and p -modifications. The simplicity of our scientific faith with respect to hydrogen, even five short years ago is abundantly manifest.

Structure of Other Nuclei.—The structure of heavier nuclei, the fascinating chapter which was opened up by the discovery of radioactive disintegration, and expanded by a study of the bombardment of nuclei by swift-moving alpha particles, is a subject in the throes of turmoil and rapid development at the present time. As mentioned above, the neutron may be a unit of nuclear structure and the H^2 unit may also be a structural unit. Heisenberg is attempting a theoretical treatment of nuclear structure based on a wave mechanics similar to that which has proved so useful in the formulation of extra-nuclear behaviour. Naturally there is wide latitude, in the absence of definite knowledge, of the forces which may be assumed as operative. H^2 on this basis might possibly be a configuration of two protons with the electron alternately on one or other of the protons. Bartlett (*Phys. Rev.*, 41, 370, 1932) has proposed that the nuclei from that of helium onwards to oxygen, O^{16} , are produced by the alternate addition of one neutron and one proton. In this way all the known isotopes are accounted for, with one possibility, He^8 ,

not yet discovered. In this series the protons and neutrons would form a p -shell around the s -shell of which the alpha-particle may be thought to be composed. From O^{16} to A^{36} the addition of neutrons and protons to the nucleus is assumed to occur in a regular succession of, first two neutrons, then two protons, this being repeated until A^{36} when the d -shell is assumed to be complete. This succession again accounts for all the known isotopes of the elements up to A^{36} successfully. Beyond this point Bartlett (*Phys. Rev.*, 42, 145, 1932) finds it necessary to postulate that electrons may have a separate existence in certain nuclei since β -type disintegrations exist.

In the preceding year Latimer (*J. Am. Chem. Soc.*, 53, 981, 1931) made an analysis of the nuclear species whose atomic weights are approximately an integral multiple of four with reference to the number of alpha particles and extra electrons present. He concluded that the analysis indicated that the alpha particles were arranged in a tetrahedral pattern, four alpha particles in a tetrahedral pattern with a coupling of proton spins. His proposed nuclear structure became a diamond type lattice of electron pairs joined by protons. Recently, he has restated his conclusions in the following manner (*J. Am. Chem. Soc.*, 54, 2125, 1932): "Alpha particles and neutrons do not exist as such in any nucleus, merely protons and electrons coupled in a certain definite pattern. When these couplings are broken, alpha particles and pairs are normally formed as in the radioactive series. However, it should be possible to break the bonds in such a way as to give neutrons, mass one or two, hydrogen, mass one or two, helium mass five, etc., and it is to be expected that such particles would be formed more readily from nuclei containing unsymmetrical or unsaturated groups." It is abundantly evident that an era of rapid development in the theory of the structure of atomic nuclei is upon us.

The Ortho-Para-Hydrogen Conversion.—It has now been established that the majority of methods of converting the one form of molecular hy-

drogen into the other are surface processes, carbon, platinum, nickel, copper and tungsten, metallic oxides such as zinc and manganese oxides, preferably in admixture with chromium oxide, being the principal active surfaces in this regard. A remarkable observation by Cremer and Polanyi indicates, however, that para-hydrogen formation occurs with a measurable but slow velocity even in the solid crystalline state of hydrogen at 12° Absolute. The process proceeds, however, only to 80% completion. This is taken to indicate that even in the crystal lattice which is molecular, exchanges of atoms between neighbors may occur, the failure to reach equilibrium being due to increasing difficulty of atom exchange due to increasing separation of ortho-molecules by newly formed para-molecules.

Photochemical Separation of Isotopes.—Two years ago Badger and Urmston reported (*Proc. Nat. Acad. Sci.*, 16, 808, 1930) the partial separation of two types of iodine molecule by photochemical absorption by one type of mercury line 5461, which became activated and reactive to hexene. The other form of the molecule having no absorption for the line in question remained unactivated and, therefore, unchanged chemically. A similar attempt to separate isotopes has recently been reported by Kuhn and Martin. *Naturwissenschaften* 20, 772, 1932). The aluminum spark line 2816.18 Å° coincides with the shortest wave length and most intense component of a triplet in the phosgene spectrum in a region where rotational structure is still present but in which about 76% of the total absorption is due to an underlying continuous region of absorption. The line in question was associated with a rotation of the isotope combination $\text{COCl}^{35}\text{Cl}^{35}$. On the basis of the percentage absorptions already cited one might expect that for every 76 molecules of ordinary chlorine produced by photodecomposition of the phosgene by such light, 24 molecules of chlorine, $\text{Cl}^{35}\text{Cl}^{35}$, would result. This would mean, with 100% efficiency of action, a chlorine of mean atomic weight 35.336 instead of the normal 35.457. Actually, it

was shown that, in this manner, chlorine produced by absorption of the wave length indicated had an atomic weight of 35.429 whereas ordinary chlorine prepared from the same phosgene had an atomic weight 35.455. The displacement of the atomic weight was, therefore, about one-fifth of that which might have been expected on the basis of absorption coefficients. The displacement is, however, a sufficient proof of the isotope effect in band spectra and of the ability to separate isotopes in this manner.

Compounds of the Noble Gases.—

The inertness of the rare gases of the atmosphere has been a fundamental factor in all theories of electronic structure of the atoms. Closed shells of 2, 8, 18, etc., electrons were assigned to the gases, helium, neon, argon, krypton, etc., and the inertness of the atoms interpreted in terms of the stability of such shells. They have been assigned a zero valence. It has, however, freely been recognized that such gases might, in the excited state, enter into compound formation with other elements. This seems to have been realized experimentally during this year. Krypton, in admixture with either bromine or chlorine, when subjected to an electric discharge of high density undergoes some change which involves a decrease in the concentration of free krypton. With chlorine present there appears, at the temperature of liquid air, in a condensation system beyond the discharge, a dark red solid which, however, is so much more volatile than the solid chlorine that it may be separated by evaporation. The vapor over the red substance shows a band spectrum and reacts rapidly with calcium, the resulting gas showing the pure krypton spectrum. Antropoff, Weil and Frauenhof (*Naturwissenschaften*, 20, 688, 1932) believe the red substance to be a rare gas halide. The chloride appears to be stable for several days at room temperature, only slowly reacting with mercury.

BAND SPECTRA AND HEAT CAPACITIES

Specific Heats of Gases.—A field in which the application of newer

theoretical ideas has tended to revolutionize our older experimental data in the field of heat capacities of the simpler gases in the higher temperature ranges. Older data are in many cases found to be considerably less than the values calculated by means of the Planck-Einstein theoretical formula making use of band-spectroscopic values for the characteristic temperatures of the gases in question. The corresponding vibrations of the atoms lie mostly in the infra-red spectral regions and their values may often be obtained, when not directly measurable, by means of the Raman effect. Newer experimental studies (Henry, *Nature*, 129, 200, 1932; Eucken and Mücke, *Z. Physik. Chem.*, 18, 167, 1932) have shown that correct experimental data coincide within the experimental error with the data calculated from the formula. It has been shown that the earlier measurements of heat capacities by the method of velocity of sound, give, for example, in the case of nitrogen and oxygen, too low values, because, in this method, the times are too brief for a complete accumulation of the energy in the oscillatory degrees of freedom. The newer work has shown that, in no case now studied, does the Planck-Einstein formula fail to give the correct values for the vibrational heat capacity of the gas. Hence, apart from the cases of gases under high compression or having a complex structure, it should now be possible to eliminate entirely the experimental determination of molar heat capacities of gases at high temperatures and to substitute for such measurements calculations based on the optical data. This conclusion has an important technical aspect in a wide range of operations involving the simpler gases at high temperatures.

Entropies of Gases from Spectral Data.—Closely allied with the problem of calculated heat capacities is that of the entropies of gaseous systems and the theoretical approach, via the band spectral data, has been increasingly used in recent years, especially for diatomic molecules. More recently, attention has been directed to the polyatomic molecules and al-

ready in the case of linear polyatomic molecules such as carbon dioxide, nitrous oxide, hydrogen cyanide and acetylene the spectroscopic data are sufficiently accurate and understood to be available for a calculation of the entropies of the gases and to yield a result in which some measure of confidence can be placed. In this manner, Badger and Woo (*J. Am. Chem. Soc.*, 54, 352, 1932), have found entropy values for the molecules just mentioned which can be compared with data otherwise obtained in the case of carbon dioxide. The agreement reached is satisfactory. As yet, such calculations are restricted to linear molecules, the problem of non-linear molecules such as ammonia, NH_3 , being too complicated for such methods of treatment. The data of band spectra not only provide the information required in the calculations under discussion but give also our best assurance as to the configuration, in these cases linear, of the molecules. As Dennison (*Phys. Rev.*, 41, 304, 1932) has recently pointed out, two independent sets of band spectral data now give us assurance that carbon dioxide in its normal state possesses a form which is both linear and symmetrical. This is deduced from the spacing of the frequencies and the spacing constant in the bands at $4.3u$ and $15u$. The fact that alternate fine structure lines of these bands have zero intensity shows that the molecule must have the symmetrical form $O = C = O$ and not $O = O = C$.

Vapor Pressures and Entropies of Crystals.—The entropies of gases may also be evaluated from a knowledge of the entropies of the substances in the crystalline form and of the vapor pressure of these crystals over the required range of temperature. Considerable attention has, therefore, been devoted in recent years to the crystalline forms of the simpler gases and their vapor pressures. Modern statistical mechanics provides the fundamental bases upon which a theory of the vapor pressure constants can now be successfully built. With diatomic vapors, the more recently discovered complicating factors of

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nuclear spins, ortho and para states and mixtures of isotopes can now be explicitly included in the analysis. A comprehensive summary of this important field has recently been supplied by Fowler and Sterne (*Reviews of Modern Physics*, 4, 635, 1932), wherein it is shown that a satisfactory presentation of the whole subject can now be achieved. Their paper can be regarded as the culmination of a chapter in the history of physical chemistry ushered in by Nernst with his famous Heat Theorem in the year 1906. What has been accomplished in this quarter-century is summarized by Fowler and Sterne in what they describe as "the rather ruthless conclusion that Nernst's Heat Theorem

strictly applied may or may not be true, but is always irrelevant and useless—applied to ‘ideal solid states’ at the absolute zero which are physically useful concepts, the theorem though often true is sometimes false, and failing in generality must be rejected altogether. It is no disparagement of Nernst’s great idea that it proves ultimately to be of limited generality. The part that it has played in stimulating a deeper understanding of all these constants and its reaction on the quantum theory itself cannot be overrated. But its usefulness is past and it should now be eliminated.” How many other chapters in the history of science have similarly run full cycle and disappeared!

ORGANIC CHEMISTRY

BY CHARLES D. HURD

ASSOCIATE PROFESSOR, NORTHWESTERN UNIVERSITY

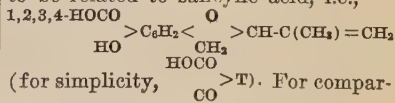
THE STRUCTURE OF ROTENONE

Rotenone, the active insecticidal principle of Derris root and Cubé root, has been the subject of numerous investigations in recent years. Although isolated in 1895 by Geoffrey in France and "rediscovered" in 1902 by Nagai in Japan, the chief developments in its chemistry have come since 1925 in the hands of another Japanese investigator, Takai, and of a German scientist, Butenandt, and of an American chemist, La Forge.

One of the outstanding contributions to Organic Chemistry of the past year has been the elucidation of the structure of rotenone by La Forge, Haller and Clark. The study has also included the related compounds, toxicaol and deguelin which, like rotenone, are strong fish poisons.

For some years it has been known that the empirical formula of rotenone is $C_{23}H_{22}O_6$ and that the molecule is divisible into two simpler halves by oxidation or by alkali fusion, namely, derric acid ($C_{12}H_{14}O_7$) and tubaic acid ($C_{12}H_{12}O_4$). Derric acid was

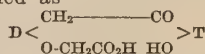
shown to contain an *o*-dimethoxyphenylene radical, 1,2,4,5- $(\text{CH}_3\text{O})_2\text{C}_6\text{H}_2\cdot$ (for simplicity, let us represent this as $\text{D}\cdot$) and tubaic acid was shown to be related to salicylic acid, i.e.,



(for simplicity, $\frac{\text{HOCO}}{\text{CO}} > \text{T}$). For compar-

ison, salicylic acid is $\begin{matrix} \text{COOH} \\ | \\ \text{HO} \end{matrix} \text{C}_6\text{H}_4$.

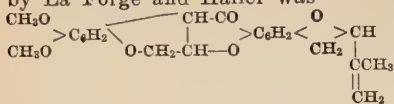
Oxidation of rotenone without eliminating the tubaic portion gave rise to derrisic acid whose structure was established as



Another compound, derritol, was of importance as a degradation product. It was formed from rotenone by the action of alkali and zinc dust. Its structure proved to be simpler than derrisic acid, possessing as it did an -OH group in place of the -OCH₂CO₂H group. This is but a portion of the evidence which supported the final structure but it conveys somewhat the method of approach.

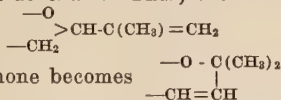
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The structure assigned to rotenone by La Forge and Haller was



or, for simplicity, $\text{O} < \begin{array}{c} \text{D}-\text{CH}-\text{CO} \\ | \\ \text{CH}_2-\text{CH}-\text{O} \end{array} > \text{T}.$

Clark has shown that the structure of deguelin is the same as that of rotenone except for details in the tubaic side chain. Thus, the



of rotenone becomes in deguelin. Toxicarol also differs in this tubaic portion of the molecule but otherwise is identical to rotenone.

WORK ON CONFIGURATIONAL RELATIONSHIPS

Organic chemistry contains great numbers of compounds capable of rotating the plane of polarized light to the right or to the left. Compounds with such optical activity usually possess a carbon atom with four different groups attached to it,

e.g., $\begin{array}{c} \text{C}_6\text{H}_5 \\ | \\ \text{H} > \text{C} < \\ | \\ \text{R} \end{array}$ wherein R may be methyl, ethyl, propyl, butyl, etc. Assuming that rotation is to the left when R = methyl, would this necessarily hold when R = methyl or butyl? The answer is, no. Levene proved this by synthesizing such a series of secondary alcohols. When R represented ethyl the rotation was to the left, but it changed to the right when R was butyl. It is convenient to classify these three alcohols as "dextro" regardless of their rotation since it allocates the substituents about the asymmetric carbon atom. The similar "levo" series of alcohols is $\begin{array}{c} \text{C}_6\text{H}_5 \\ | \\ \text{HO} > \text{C} < \\ | \\ \text{R} \end{array}$

The work of Levene, and of Friedenberg in Germany, has proven such relationships as the following: d(+) tartaric acid (thus, tartaric acid with a right-handed (+) rotation in the dextro series; (—) designates a left-handed rotation), d(—) lactic

acid, l(+) alanine, l(—) malic acid, l(—) cystine, l(—) asparagine, etc., in addition to the d(—) pentanol-2 and d(+) octanol-4 mentioned in the preceding paragraph. Hydrocarbons have even been included in this study, and much unity has been achieved.

HYDROCARBONS

Fenske has made an interesting study of Pennsylvania straight-run gasoline. The secret of his successful research was the distillation column designed especially for the purpose. It was 52 feet high and $\frac{3}{4}$ inch in diameter. The essential features in the design were adiabatic operation, a controlled reflux ratio of 40 or 50:1, and a minimum of liquid hold-up in the column. It was shown to be capable of separating in one distillation the two isomeric diisobutylenes which boil but 3° apart.

Separation of the gasoline into fractions of increasing boiling point showed that these fractions possessed alternately high and low density values (or index of refraction values). This indicated that the successive fractions contained alternately aromatic hydrocarbons (higher density), then saturated aliphatic hydrocarbons (lower density), etc. This may be appreciated when it is realized that heptane (aliphatic) boils at 98° C. (d. = 0.69), whereas toluene (aromatic) boils at 111° (d. = 0.87) and octane (aliphatic) boils at 125° (d. = 0.71).

This is of great practical significance since the various aromatic fractions required little or no addition of tetraethyllead to give a zero knock rating as a motor fuel. The aliphatic fractions, on the contrary, knocked badly and required much of the lead compound. The normal aliphatic hydrocarbons were found to represent less than 20% of the gasoline, yet they were responsible for practically all of the knock. Any one normal paraffin (heptane, octane, etc.) was present to the extent of about 2-5%.

Using efficient distillation methods on an Oklahoma gasoline, Bruun reached conclusions very similar to those of Fenske. He suggested that the 98-99° fraction of gasoline, which

contains most of the n-heptane content, be removed because of its undesirable detonation characteristics.

The selective solvent action of methylene chloride (b.p., 41°) in "dewaxing" lubricating oils has been demonstrated by Carlisle and Levine. The entire oil is dissolved in the solvent whereupon the paraffin wax separates on cooling. After filtration, the low boiling point of the methylene chloride facilitates its removal and recovery. Another recent use of methylene chloride is in refrigeration, especially for air conditioning. Because of the fact that methylene chloride boils above room temperature rather than below as is the case with the common refrigerants (ammonia, sulfur dioxide, etc.) the machine operates under vacuum conditions rather than under pressure conditions.

The wax-like coating of apples has been shown to contain the normal paraffin hydrocarbon, n-nonacosane or $C_{29}H_{60}$, and its hydroxy derivative, 10-nonacosanol. Markley, Hendricks and Sando identified these from the ligroin extract of the apple material and confirmed the structures by x-ray analysis.

PHYSICAL METHODS OF APPROACH

Two items will be included, namely, the work of Rice on the mechanism of pyrolytic reactions and the work of Mack on the shapes of organic molecules. Rice sought to answer the question whether or not radicals were transient products when molecules suffered decomposition at high temperatures. For this purpose he pyrolyzed acetone and propane and conducted the products over a mercury-covered surface which caused organic mercury derivatives to be formed. These dialkylmercury vapors were converted by reaction with mercuric bromide into crystalline alkylmercuric bromides and readily identified.

From the pyrolysis of acetone, methyl radicals were confirmed since methylmercuric bromide was isolated. Thus, it is evident that CH_3 — and — $COCH_3$ radicals must be intermediates in the well-known formation of

methane and ketene (CH_4 and $COCH_2$) from acetone (CH_3COCH_3). Similarly, propane ($CH_3CH_2CH_3$) was interpreted to break momentarily into methyl and ethyl radicals for both methyl- and ethyl-mercuric bromides were formed. This seems to offset Kassel's recent suggestion that bivalent alkylidene radicals are the essential intermediates rather than univalent alkyl radicals.

Six years ago, Langmuir (the 1932 Nobel prize medalist) presented plausible reasons for believing that a molecule such as palmitic acid has its carbon chain coiled up compactly and not fully extended. Other workers in protein chemistry (Du Noüy) and in rubber chemistry (Hauser) have taken up similar views. Indeed, these views all bear a resemblance to Frankland's suggestion many years ago that a carbon chain may be coiled into a helix. This past year, Mack has sought to determine whether a molecule such as n-octane (in the gas phase) was extended or coiled. To do this, he computed its average molecular shape as follows. The collision area of molecules, considered as an attracting elastic sphere, is proportional to the density of the gas and to the velocity of the molecules but inversely proportional to the number of molecules per unit volume and to the viscosity of the vapor. Since the first three factors were known, it was only necessary to determine the gaseous viscosity to be able to calculate that the collision area for octane was 35 square Ångstrom units, a value which could only be realized if the eight carbon atoms were coiled in the shape of a loose helix.

PHENOLIC COMPOUNDS

Several laboratories have engaged in syntheses of phenol analogs with the idea in mind to test them as antiseptics. Thus, Suter discovered that p-hydroxyphenyl hexyl sulfide possessed 200 times the bacteriocidal efficiency of phenol toward *Staph. aureus*. This value with the sulfide was double the value shown by the corresponding oxide. R. R. Read has

made a similar study. E. E. Reid prepared many phenols of the general formula, $\text{RCH}(\text{C}_6\text{H}_4\text{XY—OH})_2$, wherein X and Y represented H, CH_3 , or OH. He tested them toward various organisms. Nieuwland introduced a new synthetic method for mono-, di- and tri-isopropylphenols with the interaction of propylene on phenol in the presence of boron trifluoride.

Klarmann has compared the effect of introducing various alkyl groups in the diphenols. Catechol (*o*-hydroxyphenol) is less bacteriocidal than phenol, but its monomethyl or ethyl ether about equaled phenol. As the series of monoethers progressed from propyl to heptyl (C_3 to C_7) the phenol coefficient changed from 4 to 37 towards *Staph. aureus*, but towards *B. typhosus* a maximum was reached with the pentyl (C_5) ether. In general, the catechol compounds were less efficient than the corresponding resorcinol isomers.

Adams has reported that salts of cyclohexylalkyl-alkylamines, $\text{C}_6\text{H}_{11}(\text{CH}_2)_x\text{NR}_2 \cdot \text{HCl}$, possess a potency against *B. leprae* only if the molecules contain 15 to 18 carbon atoms. It is noteworthy that this same number of carbon atoms was found essential for potency in his earlier work with the cyclohexylacetic acids.

As a superior method of synthesis for beta-diethylamino-ethanol, an important intermediate in the synthesis of many local anesthetics (the alkylamino esters), Horne and Shriner offer the reaction between diethylamine and ethylene oxide in warm methanol.

ITEMS OF BIOCHEMICAL INTEREST

The mechanism of the oxidation of fatty acids in the animal body has long been the subject of speculation by chemists interested in metabolism. Knoop's theory of beta oxidation is the most satisfactory since it fits the evidence from the metabolism of various synthetic acids of the type $\text{C}_6\text{H}_5(\text{CH}_2)_x\text{CO}_2\text{H}$. In all such acids the C_6H_5 radical acts as a barrier to further oxidation and thus causes an identifiable residue to be eliminated as a waste product from the body.

If x in the acid had an even value, benzoic acid, $\text{C}_6\text{H}_5\text{CO}_2\text{H}$, was the eliminated product whereas if it was odd, phenylacetic acid, $\text{C}_6\text{H}_5\text{CH}_2\text{CO}_2\text{H}$, was universally formed. In all these studies, however, x was rather small. This past year Harmon and Marvel have succeeded in preparing ten other phenylated aliphatic acids, wherein x varied between 6 and 17. These will be examined by biochemists and the results of the new metabolism experiments will be awaited with interest.

Using very refined micro technic, Gettler, Niederl and Benedetti-Pichler established that the average amount of ethyl alcohol present normally in the tissues of the human brain (of non-alcoholic persons) was 4 parts per million. The dog's brain contained more, namely, 30 parts per million whereas a pig's brain contained but 0.7 p.p.m. Human liver was found to contain 25.6 and human blood 40 p.p.m.

Concurrent with the developments of the chemical knowledge of vitamins A and D, it is significant that a new source of these vitamins has come into prominence this past year, namely, halibut-liver oil. Independent assays by the Abbott Laboratories and by Parke, Davis and Company showed the oil to be 75-125 times more potent in its vitamin A content than cod-liver oil. Also it has a much greater vitamin D potency than cod-liver oil. Thus, halibut-liver oil appears to be the richest known natural source of the A and D vitamins.

REARRANGEMENTS

Chemists have long been familiar with all of the pentyl alcohols except one, namely, tertiary butylcarbinol, $(\text{CH}_3)_3\text{C—CH}_2\text{OH}$. This past year, Whitmore has demonstrated the remarkable stability of this so-called neopentyl alcohol. Also, he has investigated many reactions which involve a realignment of the carbon skeleton due to rearrangement. The following case is typical. Methyl-ethyl-*tert*-butylcarbinol, on heating with a trace of iodine gives an 80% yield of an olefine in which no rearrange-

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ment occurred (dimethyl-*tert*-butylethylene), but 20% of a rearranged olefine (unsym. methyl-*tert*-pentylethylene).

Another abnormal reaction is the synthesis of alpha-phenylpropyl chloride from beta-phenylpropylamine and nitrosyl chloride. This was discovered by Levene. He established the structure of the chloride by converting it

to alpha-phenylpropionic acid of known structure.

Several investigators (Gilman, Johnson, Austin) have noted the abnormal reactions of the Grignard reagent (RMgCl) made from benzyl chloride or cinnamyl chloride. The final products point to an allylic type of rearrangement prior to or during the reactions.

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By W. W. SKINNER

BUREAU OF CHEMISTRY AND SOILS, DEPARTMENT OF AGRICULTURE

CARBOHYDRATES

Sugars.—As a result of over-production of sugar with its attendant low value, interest has been renewed in the possibility of its utilization for other than food purposes. A research fellowship for investigation in this field has been established at the Mellon Institute, the work being conducted under the direction of Dr. Gerald J. Cox. The most practical results so far obtained indicate that sugar may be used to advantage in the preparation of lime-sand mortar. By suitable use of sugar the tensile strength of the mortar may be increased as much as 60 per cent. There appears to be added interest in the possibilities of levulose production in view of the work being conducted at the Iowa State College by McGlumphy, Eichinger, *et al.* Using a modification of the Dubrunfaut method, they have produced levulose on a semi-commercial scale on a cost basis comparable with that of beet sugar on the same scale.

Honey.—Schuette and Remy, at the University of Wisconsin, have found that there apparently exists in honey a relationship between the depth of color and the quantity of mineral matter, notably manganese and copper which it contains. At Cornell University, Dyce has developed a process for producing granulated honey of fine texture. The process depends upon producing a large num-

ber of fine crystals throughout the honey. Work dealing with removal of colloids from honey has been carried out by the U. S. Bureau of Chemistry and Soils. It was found possible to "clarify" honey with bentonite, thereby producing a product of brilliant clearness. The honey is best clarified at a density of 70 per cent solids, after which it is evaporated to the original honey density.

Some work has also been carried out by the Bureau of Chemistry and Soils on the problem of determining the floral source of honey by chemical means. It has been found, for instance, that it is possible to distinguish orange honey from other floral types since it contains small quantities of the natural flavoring substance methyl anthranilate which is not found in other floral types. Since methyl anthranilate can be detected chemically in very small amounts, its detection in honey serves as a specific test for orange honey. It is possible to detect as little as 10% orange in a blended honey by use of this test.

Starch.—Taylor and Lipschitz have reported a study in which differences in the hydrolysis products of the amyloses of cornstarch have been detected. The U. S. Bureau of Chemistry and Soils has developed an improved method for production of sweet-potato starch. In this process alkaline sulphite solutions have been found to be highly satisfactory for

use in the removal of colored compounds in the manufacture of the starch. The manufacturing time has been lowered to that required for making high grade white potato starch, the yield has been appreciably increased, and a starch of high degree of purity and excellent color has been produced.

FOOD RESEARCH

Food Preservation.—As an outcome of the Mayonnaise Manufacturer's Research Fellowship, established in the U. S. Bureau of Chemistry and Soils, Kilgore has published a series of articles on the keeping quality of the emulsion, and Wheeler's report on peroxide formation as a measure of autoxidative deterioration is a definite step in advance in the study of changes due to developing rancidity. Triebold has shown that the keeping quality of shortening is enhanced by the wheat oil found naturally in flour, and Triebold and Bailey have found that the keeping quality of crackers baked with various shortenings is closely related to the length of the induction periods of the fats used. Coe of the Bureau of Chemistry and Soils has shown that light is a predominant and at the same time an easily controlled factor in the development of rancidity in oil bearing foods, and Coe and LeClere have reported that green light delimited by 4,900 to 5,600 Angstrom units is the main portion of the visible spectrum that is inactive with regard to the development of rancidity.

The quick-freezing of fruits, vegetables, fish, and meats as a method of preservation has opened up a wide variety of problems. Those with chemical implications, such as desiccation, oxidation, enzyme action, as bearing on texture, color, odor, and flavor, have been carefully outlined by Tressler. Chace and his associates in the Bureau of Chemistry and Soils, and several of the state experiment stations as well as industrial concerns, have reported interesting studies on practical applications of the method to commercial conditions.

Metals in Foods.—Interest in the presence of the rarer metals in food-

stuffs is well sustained. Carlyle has written on manganese in Texas soils and its relations to crops. Peterson and Skinner have tabulated the manganese content of 83 representative foodstuffs. The results of the Mellon Institute research on aluminum cooking utensils have been published in several papers by Cox and his associates. The report of Smith, Lantz and Smith on fluorine as the cause of mottled enamel in human teeth has stimulated further research along that line. Conn, Webster, and Johnson conclude from their work with rats that chromium plated equipment for handling and processing foods does not constitute a health hazard. Mark and LeRoux have studied the corrosion of bronzes by vinegar, and their work has an important bearing in the manufacture of pickles. Trebler has contributed to the rapidly mounting list of papers on the corrosion of metals by milk, the present study having to do with the effects of operating conditions on corrosion in various parts of the pasteurizing equipment.

Baking Methods.—Merritt and Blish, working under the fellowship on baking methods, established by the American Association of Cereal Chemists in 1931, have found that the time required for the proper mixing of one flour will not hold for another flour, and that machine molding tends to reduce the variability of loaf volume.

Vitamins and Nutrition.—Studies on the nutritional properties of foods have been continued by Mitchell. The proteins of lean beef and soybeans were found to be biologically deficient in cystine, and those of wheat, corn and oats in lysine and tryptophane. It was also shown that a deficiency of cystine in a ration inhibits body growth and the growth of hair. Although addition of cystine to such a deficient ration restores hair growth to normal, feeding cystine in excess of nutritional requirements, on the other hand, does not result in the production of an excessive growth of hair. Important studies have been made by Calvery on the composition of eggs and its relation both to the ration of the hen and to various problems connected with the development of the

chick. The purified proteins of eggs, including keratin from egg shells, have been again isolated and re-investigated for their amino acid content, use being made of recent developments in analytical methods.

The isolation and establishment of the chemical nature of vitamin C has been a matter of absorbing interest during the past year. King and his associates have isolated a crystalline compound from lemon juice which, on account of its high antiscorbutic activity and general properties, they regard as vitamin C. It is concluded that this vitamin C is identical with the hexuronic acid studied by Szent-Gyorgyi and Kendall as a reducing factor in plant and animal tissues. Investigations by Nelson and Mottern showed that freezing orange juice under various conditions in an atmosphere of air, oxygen, and nitrogen has no significant effect upon the vitamin C content of the juice. As a result of recent feeding experiments with rats, investigators agree that carotene, a yellow plant pigment, is converted in the body into vitamin A. Hart and associates have now shown that carotene may serve as a source of vitamin A for chicks also. Contrary to some previous reports of other investigators, they found that xanthophyll does not have toxic effects. Oysters have been shown by Levine, Remington, and Culp to be effective for use in combatting nutritional anemia. This property of oysters is accounted for on the basis of their iron, copper, and manganese content.

INSECTICIDES

Rotenone and Related Compounds.

—The most important accomplishment in the field of insecticidal chemistry during the year 1932 was the determination of the complete structural formula of rotenone by LaForge, Halber and L. E. Smith. It is of interest to note that Japanese and German chemists who were also working on this problem have since confirmed the structure first proposed by LaForge and co-workers. The structures of deguelin and tephrosin have been worked out by Clark, and the constitutions of these compounds are also estab-

lished. The relative toxicity of rotenone and related compounds as insect stomach poisons has been determined by Shepard and Campbell.

Pyrethrins.—Gnadinger and Corl have continued their valuable work on the pyrethrins and have also described the manufacture of concentrated pyrethrum extracts. Hartzell and Wilcoxon have reported that heat, sunlight, ultra-violet light and natural aging cause a loss of pyrethrin content in pyrethrum flowers.

Anabasine.—C. R. Smith has abasine from the Russian weed *Anabasis aphylla* with the previously synthesized neonicotine.

Other Insecticides of Plant Origin.

—Drake and Spies have tested extracts from many plants upon fish in an effort to find some of insecticidal promise.

Organic Sulphur Compounds.—Murphy and Peet have reported on the aphicidal value of an aliphatic thiocyanate, and Drake and Busbey have shown that certain organic thiocyanates and isothiocyanates are highly toxic to fish. These groups of compounds look promising as sources of insecticides.

Attractants.—Yetter and Steiner found that methyl cinnamate increased the attractiveness of a brown sugar bait to oriental fruit moths. The method of controlling insects by bait traps has interesting possibilities, and there is a large field of aromatics which is worthwhile testing as insect attractants.

Fluorine Compounds.—Progress has been made in the utilization of fluorine compounds as insecticides. Processes for making the more promising of these compounds have been patented by Carter.

GENERAL TOPICS

Fats and Oils.—Attention is called to the outstanding investigations on synthetic glycerides which have been made during the past three years by King and his students at the University of Pittsburgh. Jamieson and McKinney have described the results of an extensive investigation of the oil from the seed of the Sapote fruit

(*Calocarpum mammosum*) from the American tropics. Poore has presented a comprehensive study of the composition of California lemon and orange oils.

Industrial Fermentations.—Fred, Peterson, and their associates at the University of Wisconsin, have published a paper on the sterol content of a number of molds. The thermophilic fermentation of cellulose, and the butyl-acetonic fermentation of starch have also received the attention of these investigators.

Lignin.—Phillips and Goss have demonstrated that lignin can be broken down to yield two aromatic substances such as 1-N Propyl-3-methoxy-4-hydroxy benzene and anisic acid. Waksman and Iyer have shown that lignin has a retarding effect upon the decomposition of proteins, not due to any toxic action of the lignin, but a result of the interaction of the lignin with the protein, which makes the latter more resistant to attack by micro-organisms. Waksman suggests that soil humus may be made up of lignin and protein complexes.

Naval Stores.—Bogert and Hasselstrone, and Fieser and Young have published papers on retene, which in view of the significant relationship of retene to abietic acid and the natural resin acids constitute valuable contributions to the fundamental chemistry of naval stores products. Papers on rosins by Peterson, Pragoff, and Nash of the Hercules Powder Company are useful contributions to this field. Palkin of the Bureau of Chemistry and Soils has presented a valuable report upon the fractionation of American gum spirits of turpentine and evaluation of its pinene content by optical means.

Paper and Cellulose.—Billington and Keller have presented important results on the fiber substance density of pulps and papers. Murray, Stand, and Gray have published their investigation on the optical rotation of the alkali-soluble portion of oxidized cellulose, and have also discussed the acid value of cellulose fatty acid esters, with the presentation of a method for the rapid analysis of certain cellulose acetates. Ritter and his associates at

the U. S. Forest Products Laboratory have reported a series of investigations relating to the effect of processing on the number of ray cells in pulps and stuffs, and the effect of pebble-mill treatment on the strength properties of a pulp prepared by chlorination, the latter process yielding a pulp suitable for the production of grease-proof and glassine papers.

Sulphur Dioxide.—Griffin and Skinner call attention to the significance in the air of small amounts of sulphur dioxide having its source in combustion or in smelting operations, with relation to agriculture, forestry, cattle raising, etc.

Tanning Materials, Hides and Leather.—Theis has presented an elaborate study of the liming and depilation of animal skin; Theis and Goetz have made a critical study of the pickling of bated skin; Moore, Highberger, and O'Flaherty have continued their studies on the use of amines in liming steer hides. Bowker and Critchfield of the U. S. Bureau of Standards have reported on the deteriorating influence of sulphuric acid upon leather tanned with extracts of chestnut wood and quebracho, and Frey and Clarke of the U. S. Bureau of Chemistry and Soils have presented positive proof that acidic sulphur compounds in the atmosphere play an important part in the deterioration of bookbinding leathers. Clarke and Frey have also made a study of the tannin content of young hairy Chinese chestnut trees grown in the United States, in comparison with second-growth American chestnut.

PUBLICATIONS

A new book of interest to agricultural chemists is Jamieson's *Vegetable Fats and Oils*, a comprehensive survey of sources, uses, methods of manufacture and of analysis, and chemical and physical constants for a wide range of the rarer as well as the more commonly used products of this type. Winton and Winton have published the first of a projected series of three volumes on the *Structure and Composition of Foods*, the present volume covering cereals, starch,

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oil seeds, nuts, oils, and forage plants. *Colloid Chemistry*, Volume IV, which is the second series of papers on technical applications and the final volume of a most noteworthy compilation of contributions by internationally

known specialists, is of especial value to agricultural chemists, including as it does discussions and extensive bibliographies on the various types of carbohydrates, and on tanning, foods, water supply, and sewage disposal.

ELECTROCHEMISTRY

BY COLIN G. FINK

PROFESSOR, COLUMBIA UNIVERSITY

GENERAL

Although the American electrochemical industry as a whole continued to be seriously hampered during 1932, reflecting the world-wide collapse of metal and products markets, it is most gratifying to record a very healthy activity at university and industrial research laboratories, resulting in a number of important and valuable discoveries that promise to glorify the new prosperity era. During the course of the year it became more generally appreciated that stimulating the endeavors and energies of our research workers was one of the quickest means of reviving public interest and creating an active demand in new products and processes. The coming era will far outshine in splendor and accomplishments any era of the past.

THE ELECTRIC FURNACE AND ITS PRODUCTS

Design.—The center of interest in electric furnace design continued to be the high frequency induction furnace which has now firmly established itself in the steel industry. Numerous patents covering details of design were issued here and abroad during the course of the year. Noteworthy also is the fact that the Detroit rocking furnace, an indirect arc type which heretofore had confined its applications to the non-ferrous industry, was now invaded the steel foundry. After three years of study and development the Detroit furnace is today producing high-grade gray iron castings from charges consisting of steel scrap. The product has the high tensile strength of 110,000 lbs. per

sq. in. Due to the rocking action of the furnace, absolute uniformity and homogeneity are definitely assured.

Alloy Steels.—There has been a rapidly increasing use of special alloy steels, notably high chromium, made in the electric furnace. Ordinary carbon steels are being replaced by special alloy steels to meet the modern and more stringent specifications of industry. The electrometallurgist today can meet almost any requirement, be it a steel of special magnetic properties, such as the new high-nickel steels, or one extremely resistant to corrosion, such as the 18% nickel-8% chromium steels, or one of great hardness and wear-resistance, such as the high-manganese steels, or one of rapid cutting qualities, such as the high-speed tungsten steels.

New Furnace Products.—The Electrometallurgical Company of Niagara Falls has introduced a number of new electric furnace products. Cromansil steel which contains relatively small amounts of chromium, manganese and silicon is particularly suitable for bridge and ship building. A new chrome-vanadium nitriding steel which combines great hardness with good strength and ductility has widened the field of use for nitriding steels. Besides these, a number of new chrome steels and chrome-cast irons have been developed in the laboratories of this company which are highly resistant to corrosion and possess valuable physical properties. The Electro Refractories and Alloys Corporation has marketed a new high-temperature silicon carbide refractory "tercod" especially suitable for electric furnace

roofs. Atkins & Co. have introduced tungsten carbide saws that operate at speeds ranging from 5,400 to 10,000 feet per minute.

FUSED ELECTROLYTES

The past year is noteworthy for the widespread introduction of a number of aluminum products. The spandrels of the buildings of Radio City are made of an aluminum-silicon alloy which is highly resistant to the attacks of the elements. Hundreds of tons of these spandrels are already installed. A few tenths of one per cent of lithium (another fused electrolyte product) added to aluminum has bestowed upon it properties approaching those of steel. After years of research the anodic treatment of aluminum surfaces has now become a successful commercial process. Not only does this surface treatment render the aluminum more resistant to severe corrosion conditions, but finishes are produced in various colors—blues, greens, reds, yellows—highly attractive and ornamental. Particularly praiseworthy are the fine results in this line obtained by Dr. L. C. Pan. The application of aluminum to aeroplane construction has stimulated nation-wide interest among traction engineers. Demonstrations at Cleveland and elsewhere have been most convincing that aluminum will soon be the major metal of construction in all railway equipment. Fink and associates have developed an aluminum alloy-coated steel that promises to be a serious competitor of heretofore standard products. It is far more resistant to corrosion than tin plate and galvanized iron. Furthermore, it is fireproof, an important quality in materials of construction. The Westinghouse Company has perfected a new electric welder that is making excellent welds of aluminum. Small additions of aluminum to cast iron have resulted in a product of superior mechanical properties.

BERYLLIUM

Patents were issued to H. C. Claffin covering a process of making beryllium metal comprising a fused bath of sodium and beryllium chlorides.

SODIUM

The Dow Chemical Company published details of the large-scale installation at Midland, Mich., using metallic sodium (encased in iron pipes) as an electric power conductor in place of the usual copper conductor. The conductivity is better and the cost is lower. A very important application of sodium metal is the new sodium vapor lamp already in commercial use in Holland, and soon to be more generally adopted in this country.

URANIUM

Patents were granted to the Westinghouse Company for the production of pure uranium metal from a fused bath of potassium uranium fluoride. The metal will undoubtedly find many new and important applications. It is intimately associated with radium in pitchblende.

AQUEOUS ELECTROLYTES

In the copper industry the centre of interest has been the "high-conductivity, oxygen-free" copper. Although present costs of this very high-grade product are still prohibitive for many applications, further research will undoubtedly overcome this objection. Ordinary copper contains definite quantities of oxygen, present as cuprous oxide to the extent of about $\frac{1}{2}\%$ of this compound. Another noteworthy development is the direct production by electrodeposition of a continuous thin, strong copper sheet 3 to 4 feet wide. Years of careful research have overcome all technical difficulties. A large lead drum slowly revolving is used as cathode. H. K. McIntyre and Geo. C. Cox were granted letters patent on their ingenious electric furnace in which copper is electrolytically reduced from its ore which constitutes the charge of the furnace.

ELECTROPLATING

In the plating field chromium has established itself firmly in a wide variety of industries. The brilliant corrosion and wear-resistant surface makes chromium plate universally adaptable. A newcomer in the plating field is indium which Daniel Gray has

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successfully plated on various basis metals. Indium is a soft, lustrous white metal very resistant to corrosion. Fink and Otis H. Gray developed a method for electrodepositing a lead-bismuth alloy on steel and brass, rendering same resistant to hydrochloric acid attack. Patents were issued on methods for tungsten plating. Tungsten is insoluble in hydrochloric acid. Further developments of importance occurred in the plating of rhodium and palladium, notably by the Baker Platinum Company. Improvements have been made in the electrodeposition of antimony; of copper direct on steel from cyanide-free baths; of zinc-cadmium alloys on steel; and of various ternary alloys.

CELLS AND BATTERIES

Chief interest again centered about the photo-electric and photo-galvanic cells. Many valuable improvements in construction and in design were made, and numerous interesting applications of the cells were recorded. The day is not far off when photo-electric cells will be installed in every household, not alone in factories. The Laboratories of the Westinghouse Lamp Company introduced a new titanium photo-electric cell, and the Columbia Electrochemical Laboratories a new chrome-selenium cell.

The National Carbon Company published details on the improved air cell taking the place of the ordinary dry cell, in particular, in radio sets for farming districts not supplied with electric lighting circuits. The new cell employs the oxygen of the air in place of manganese dioxide as a depolarizer. The Burgess Laboratories,

one of the pioneers in the dry battery field, have perfected methods of producing a very high-grade manganese dioxide.

GASES

The new solvent industry which was started a few years ago, based on the utilization of cheap, electrolytic chlorine, has firmly established itself and promises to develop rapidly with the return of prosperity. Similarly, the utilization of acetylene obtained from electric furnace carbide has resulted in the production of various alcohols and acids. The industry has long since passed the laboratory stage. Much of the vinegar consumed today in the United States and Canada is derived from acetylene rather than from wine or cider.

Electrolytic hydrogen has encountered a serious competitor. The General Electric Company, Westinghouse, Ajax Electrothermic Corporation and others have put on the market simple electric devices for the production of hydrogen from liquid ammonia. The gas is free from sulfur, oxygen and other impurities. It is being used for a wide variety of purposes, including the reduction of tungsten oxide to metal.

ORGANIC ELECTROCHEMISTRY

An outstanding accomplishment in this interesting field is the development of a new type of solvent. R. H. McKee and C. J. Brockman use the solutions of soda salts of organic compounds with splendid electric conducting properties in place of solvents, such as alcohol, of very poor conductivity.

INDUSTRIAL CHEMISTRY AND CHEMICAL ENGINEERING

BY SIDNEY D. KIRKPATRICK

EDITOR, *Chemical & Metallurgical Engineering*

ECONOMIC READJUSTMENT

Chemical industry in 1932 faced the problem of readjusting itself to a lower scale of commodity prices. In most instances this meant a drastic re-

duction in costs of production, thus calling upon the chemical engineer for unprecedented savings through increased efficiency of operations. But simultaneously, this same economic

pressure extended its influence beyond the plant and into the shipping rooms and sales offices. The industry began to realize that even greater economies might be effected through the application to distribution of the same rigorous methods that had so greatly improved production practice. As a result of engineering studies of distribution made by a number of leading chemical companies, general administration and selling costs were reduced to percentages that compare favorably with those for other commodities. It is perhaps significant that these readjustments have enabled chemical industry to withstand the continued effects of the depression considerably better than has been the case with industry in general. This same resistance, combined with the remarkable recuperative powers which the industry exhibited in coming out of the 1921 depression are perhaps its most promising characteristics in these times of stress.

INTER-FUEL COMPETITION

In recent years the rapid extension of natural gas pipe lines to reach many of the larger industrial centers, has called for a complete reconsideration of the fuel-purchasing habits of chemical industry. Similar growth in the supplies of liquefied petroleum hydrocarbons, propane and butane, and of other gaseous byproducts of oil refining, has further complicated the problems of fuel selection and utilization. Electric heat is likewise making tremendous strides in process uses. In the interest of further economy, the chemical engineer has been forced to apply a precise yardstick to the gaging of competing fuel supplies. He has had to evaluate all of the factors that go to make up the ideal thermal processing for his particular application. Often, intangible factors such as cleanliness and convenience of operation have dictated the use of gas or electricity although important advances in temperature control, installation and equipment construction have sometimes made it desirable to use the cheapest possible fuel sources. In the end, the product itself usually deter-

mines the choice of fuel. It is significant that according to the last Census, the chemical and process industries accounted for 43.5 per cent of all the fuel used in industry. In 1929 the total fuel consumption by this group had a value of \$879,535,657 divided as follows: bituminous coal, 56.5%; fuel oils, 12.6%; purchased electrical energy, 11.7%; manufactured gas, 6.5%; natural gas, 5.3%; other fuels, 3.4%; coke, 2%; anthracite, 2%.

MODERN METALS

Stainless Steels and Alloys.—One of the most striking trends in chemical industry in 1932 was to be seen in the utilization of new materials of construction. The metal producers had supplied a wide variety of new stainless steels and other alloys to meet the severe requirements for corrosion, heat and abrasion resistance. In one notable instance the metal manufacturers worked with a committee from the Technical Association of the Pulp and Paper Industry in cooperative preparation of standard specifications for high chromium, high nickel iron castings and steel for use in handling sulphite solutions. As this movement spreads to other fields, it will go a long way toward solving the corrosion problems of the chemical industry.

Ply Metals.—Economy was again the dictating factor that led to the many important savings which have been effected by the so-called ply metals. During 1932 several new materials were developed in which a thin veneer of stainless steel or other alloy was bonded to a less expensive carbon steel backing. One of these products was a bond of mild steel and corrosion resistant alloy welded together in a slab or billet which could be rolled to any desired thickness. Tests have shown that the composite metal can be bent, drawn, spun or flanged by the usual practices without affecting the bond.

METAL-FIBRE COMPOSITIONS

A new bonded metal developed in the Mellon Institute of Industrial

Research in the Spring of 1932, consists of a metal base to one or both sides of which a suitable felted fibrous material has been attached by a metal adhesive. Since the felted material may be asbestos or some other equally inert material, the metal is adequately protected against corrosive attack. Still a different type of composition consists of thin metal sheathing cemented under pressure to non-metallic board, such as insulating lumber. The resulting product is of light-weight, but sufficiently strong and resistant to be used in constructing drying tunnels and similar equipment. A process worked out in Germany but introduced into the United States late in 1932 achieved the remarkable result of metalizing wood. Low melting alloys of bismuth, tin, antimony and lead, are used in a molten state and under moderate pressure they are impregnated in various types of wood. The material is used for decorative purposes to resist corrosion and in the manufacture of self-lubricating bearings.

NON-METALLICS ADVANCE

The makers of non-metallic materials such as plastics, rubber, glass, enameled-ware, and cement, have developed many novel products and applications in the chemical engineering field. Glass and glass- or enamel-lined equipment have been used on an increasing scale in applications where high resistance and extreme cleanliness were demanded. Hollow glass bricks of special design were offered for use in building construction. A tower, 24 in. in diameter and 20 ft. high was made of borosilicate glass, for a chemical operation involving the use of wet chlorine gas. A bromine plant in the Southwest which began commercial operation in 1932, consisted of seven acid-proof, glass-lined steel stills set one above another in a tower 100 ft. high and connected by glass and glass-lined steel pipe and fittings. A few years ago such construction would have been impossible because of the lack of available material.

SYNTHETIC RUBBER AND DRYING OILS

Synthetic Rubber.—When acetylene gas is passed into an aqueous solution of cuprous and ammonium chlorides, two compounds are formed. The first is mono-vinyl acetylene, which can be readily converted into an extremely tough, rubber-like material that can be compounded or worked by methods and machinery used for natural rubber. It does not have all of the mechanical properties of rubber but it is decidedly superior in its resistance to oils and solvents. Hence it is expected that this new synthetic rubber will be widely used in gaskets, packings, diaphragms and hose.

Divinylacetylene.—The second product of the reaction is divinylacetylene, which when heated in the absence of air, polymerizes to form a non-volatile, viscous drying oil. This can be dissolved in naphtha and applied as a quick-drying surface coating that is unattacked by all corrosive agents with the exception of hot concentrated nitric acid and similar strongly oxidizing materials.

Polysulphide.—Another new material to attract chemical engineering attention was a polymethylene polysulphide obtained by the chemical reaction of ethylene dichloride, sulphur and sodium sulphide. It has many of the characteristics of rubber, but is not attacked by gasoline or other petroleum products.

Carbon Lining.—Because carbon itself is unaffected by practically all acids and alkalis, it has recently been used on an increasing scale in the form of brick and tile for lining tanks and digesters and in such special shapes as tubes, plates and beams. Difficulties at first experienced because of the porosity of this material have been largely eliminated by pressing a denser product which is jointed with acidproof cements.

Plastics.—Plastics are materials which in the process of manufacture or under the influence of increased pressure and temperature softens sufficiently to be pressed or poured into molds or forms, the contents of which become rigid at ordinary tem-

peratures and pressures. The manufacture of plastics in this country in recent years has constituted one industry that has been fairly successful in resisting the general trends of the depression. New uses such as closures for tubes, bottles and jars, or as substitutes for china or porcelain in cups and saucers and other dishes, represent one of the reasons for this advance. Another is the rapid development of new forms of older products, prominent among which in 1932 was the so-called cast glyptals, which are resins made from glycerine and phthallic acid. By new methods and processes the time of curing has been greatly reduced and this material has become available for many interesting applications.

NITROGEN'S KALEIDOSCPIC RECORD

A topsy-turvy world situation in nitrogen brought with it more upsets than that highly explosive industry has witnessed in a decade. In Chile a series of political revolutions placed added obstacles in the path of the natural nitrate industry whose existence was already seriously threatened by the declining market and the ruthless competition of the synthetic producers. Imports of sodium nitrate into the United States in 1932 were only a small fraction of 1931. It is estimated that less than a quarter as much nitrate was used for fertilizer as during the previous year.

This nitrate nitrogen was largely supplanted by ammonium sulphate which sold at such an abnormally low price that in 1932 the farmer's dollar could buy 50 to 100 per cent more nitrogen in this form than as Chilean nitrate. Despite the fact that our byproduct coke ovens give us an exportable surplus, the United States became the dumping ground for large imports of ammonium sulphate first from Holland and later from Japan. In the former case the breakdown of European nitrogen cartel was probably the cause. In the latter, it was the depreciated value of the yen. To complete this upset in our foreign trade in nitrogen, the United States became for the first time a sizable

exporter of synthetic sodium nitrate which was sent to France and Northern Europe in competition with the Chilean product.

Another thorn in the side of the Chilean industry that proved most painful in 1932 was the large scale production of iodine obtained from oil well brines in the United States. For years a world monopoly in Chile had held prices at \$4 or more a lb., despite known costs of perhaps 25 or 30 cents per lb. f.o.b. the Chilean plant. In tardy recognition of the threat of American production, the price was reduced first to a few cents under \$3 per lb., and more recently to slightly less than \$2. Even on this basis, it is believed that a part of the American industry can continue to compete.

FERTILIZER DEVELOPMENT

In a year when fertilizer consumption was drastically curtailed because of the agricultural situation, there were at least two significant developments of chemical engineering interest. Strangely enough these were in radically different directions. The first, announced in February, 1932, was the production of a highly concentrated fertilizer containing 70 per cent or more of actual plant food and prepared by a special process to extrude it into small cylindrical granules that could be readily drilled into the soil with ordinary farm machinery. Sponsored by an active technical group interested in the ultimate disposal and profitable utilization of Muscle Shoals, the announcement received wide publicity and interest. Large scale tests made in more than 20 states seemed to demonstrate marked superiority over the ordinary type of mixed fertilizers of low analysis. Although the product had been made in considerable tonnage, it was decided that all of 1932 should be given over to further research and agricultural studies.

In October, 1932, one of the largest of the chemical companies announced the development of urea-ammonia liquor as a new fertilizer material for use in the mixing plants. This marked a direct liasson with the existing fer-

tilizer industry in contrast with the independent development of concentrated fertilizers previously planned by some of the chemical companies. Urea-ammonia liquor has a total ammonia content of 55 per cent, two-thirds of which is in inorganic form while the balance is contained in urea as organic nitrogen. The liquor is shipped in 11,000 gallon steel tank cars and is introduced in measure quantity into the usual fertilizer mixers. Factory scale tests have been under way for almost a year and experiments in the United States Department of Agriculture and in several large state agricultural experiment stations have indicated that urea is superior to other sources of ammonia and nitrogen, especially for tobacco, potatoes and many truck crops.

RAYON AND CELLULOSE WRAPPING FILMS

Rayon definitely discovered the depression in 1932 although its particular slump was one of profits rather than of output. While production fell some 15 to 20 per cent below the all-time peak year of 1931, it nevertheless, approximated the boom year of 1929 and probably equalled 1930. Prices, however, are another story. The price index of rayon is usually based on 150-denier viscose silk which has remained for years the staple product of the industry. In 1928 the per-pound price of this base material fell from \$1.50 in 1927 to the hitherto unprecedented figure of \$1.30 which was maintained well into 1929. From \$1.15 in later 1929, the next tumble precipitated the price to \$0.95 in 1930 which, shortly after the turn of 1931, fell again to \$0.75. Here it seemed it must remain for this price was only barely profitable to the industry as it then operated. But overcapacity combined with overeagerness in the early months of 1932 with the result that after a preliminary slip the price hit bottom at \$0.55 and so remained for several months until, after a summer shut-down of one or more months, producers found a sudden revived demand which could not be met with the reduced stocks on

hand. Since August, therefore, production has again been booming and the price has risen to the somewhat more encouraging level of \$0.60.

This story of late summer revival is intimately tied up with the output of the industry in 1932. For the first seven months, *Textile World* estimates from fairly complete figures a total production of 62,500,000 lbs. and in September, before the full extent of the Fall revival was apparent, suggested a probable addition of 52,500,000 lbs. for the remaining five months, or a total of 115,000,000 lbs. for the year. As this is written, a somewhat larger production, perhaps 120,000,000 lbs. seems more likely, comparing with 144,350,000 lbs. in 1931, 119,000,000 lbs. in 1930 and 123,130,000 in 1929. Applying *Textile World's* percentages, it is probable that this production is split up into 97,500,000 lbs. for viscose, 14,500,000 lbs. for acetate, 3,725,000 for cuprammonium and 4,275,000 lbs. for nitrocellulose silk. World production according to this same authority may possibly have increased during the year by as much as 3 per cent to 483,000,000 lbs.

Although it may not point a definite trend for the industry, the successful commercial operation of the Furness cuprammonium process was undoubtedly the high point of the technical year. Employing a modified procedure in making the cupra solution, the new method has overcome several disadvantages of the old. But even more important, it has combined the operations of spinning, decoppering, washing, drying and twisting in a single machine, eliminating such of the labor and practically all of the degradation of product inherent in the older processes. Inspection is not needed and breaks are exceedingly rare. It has been stated that a production cost of but \$0.32 per pound has been attained with much smaller plant investment than has heretofore been possible.

Cellulose and cellulose-acetate wrapping film appear to have held up well despite the decrease in rayon output. The 1931 production of 37,-

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000,000 lbs. was probably equalled in 1932 with the moisture-proof grades now representing about 60 per cent of the total. New factors in the field, both in cellulose and cellulose-acetate film, have come into production during the year but their influence is as yet hardly felt and the two chief producers of 1931 still account for the bulk of the output.

PHYSICS

By F. G. TUCKER

PROFESSOR, OBERLIN COLLEGE

ATOMIC NUCLEI

The investigation of the structure of atomic nuclei continues to command the interest of an increasingly large number of physicists, and the year 1932 will figure prominently in the future history of this field of research. The 1930 and 1931 issues of *THE AMERICAN YEAR BOOK* recorded the progress achieved in the development of high voltage generators and stated the widespread conviction that when the physicist is able to produce and control high speed particles with energies equal to or greater than that of the alpha particles from radium, he can confidently anticipate a successful attack upon the nucleus. Recent results have justified this conviction.

DISINTEGRATION OF NUCLEI BY FAST PROTONS

Cockroft and Walton (*Proc. Royal Soc.*, 137, 229), working in the Cavendish Laboratory at Cambridge, Eng., have shown that lithium, boron, fluorine and many other elements emit high speed alpha particles when they are bombarded with high velocity protons. The effect was most pronounced in the case of lithium. As the result of a series of researches extending over several years, the authors developed a high voltage generator capable of producing a steady potential difference of 700,000 volts. The protons were generated in a hydrogen discharge tube, and after being accelerated to high velocities in a special tube, emerged into a brass chamber where their effects were studied. The element to be investigated was used as a target, the

proton beam striking it at an angle of 45° . A zinc sulphide fluorescent screen was placed in the side of the experimental chamber so that a normal to the screen made an angle of 45° with the target. The fluorescent screen was observed from the outside with a low power microscope.

When a proton current of about one microampere struck the target and the accelerating potential was gradually increased to 125,000 volts, bright scintillations appeared on the screen. Above this voltage the number of scintillations increased rapidly with increased potential. To prevent reflected protons from reaching the fluorescent screen a sheet of mica with a stopping power of 1.4 cms. of air was placed between the target and screen. Direct experiment showed that the protons of the original stream would not penetrate a screen of this thickness. By interposing additional screens it was found that the particles ejected from lithium had a range of about 8 cms. of air, which is comparable with the fastest alpha particles from radioactive sources. Although the number of the particles increased rapidly with voltage, the range of the particles was found to be independent of potential between 250,000 and 500,000 volts.

In order to determine the nature of the particles, they were detected by three independent methods. First, by visual observation of scintillations; second, by observation of the tracks produced in a Wilson cloud expansion apparatus; and third, by a recording amplifier counter. In each case the effects produced were practically identical with those pro-

duced by alpha particles from polonium. The evidence, therefore, seem to be conclusive that lithium atoms bombarded by fast protons emit high speed alpha particles. The importance of this experiment of Cockroft and Walton can hardly be over-estimated, for it is the first successful attempt to obtain alpha particles from a source that does not contain a natural radioactive element.

The efficiency of the process is not high. In the case of lithium, which yielded the largest number of scintillations, approximately one disintegration was observed for each 1,000 million protons striking the target, when the accelerating potential was 250,000 volts. Other experimenters, however, have recently reported greater efficiencies. In spite of this small percentage of disintegrations, by increasing the proton current it should be possible to produce more intense beams of alpha particles by this method than is possible with radioactive sources.

In addition to lithium, boron, and fluorine, scintillations were observed from beryllium, carbon, aluminum, calcium, cobalt, nickel, copper, silver, and uranium. Sodium and lead gave a few scintillations, but the effect was so weak with oxygen, potassium, and iron that further experiments must be made to determine whether or not disintegrations actually occur. It is evident that a great amount of experimental work will be required to examine the effects of bombardment on all the elements and to determine the nature and energies of the emitted particles.

The discovery of Cockroft and Walton was announced in April, 1932. By October of the same year their work on lithium had been verified by three other investigators. At the University of California, Lawrence, Livingston, and White (*Physical Review* 42, 151), using the high voltage apparatus described in THE AMERICAN YEAR BOOK for 1931, observed the emission of fast particles from lithium fluoride when it was bombarded with protons having energies of 360,000, 500,000, and 710,000 electron-volts. Gerthsen, at the University

of Giessen, (*Naturwissenschaften* 20, 744) and Kirchner, at the University of Munich, (*Physikalische Zeit.* 33, 776) have also observed scintillations from lithium bombarded with protons. Their results are in general agreement with those of Cockroft and Walton, but they have been able to observe the effect at voltages much lower than 125,000 volts. Kirchner observed that when a fresh lithium surface was vaporized on the target, in vacuo, the number of disintegrations was increased approximately fourfold.

The suggested interpretation of the disintegration process is that the proton (mass 1) penetrates the nucleus of the lithium isotope (mass 7), giving rise to an unstable structure (mass 8) which breaks up into two high speed alpha particles, each having a mass of 4 units. From the range of the alpha particles the amount of energy given up when the disintegration occurs may be calculated, and the result obtained is approximately 17.2 million electron-volts. The amount of energy released by this transformation may also be calculated from theoretical considerations based on the theory of relativity. According to this theory, if in a given transformation a loss of mass ΔM occurs, there is a gain in energy equal to $c^2 \Delta M$, where " c " is the velocity of light. The mass numbers given above are only approximate. When Aston's precision values are used, it is found that a loss of mass equal to 0.01548 units occurs. This gives a gain in energy of about 15 million electron-volts, which is in satisfactory agreement with the experimental result.

Following the general lines of Gamow's theory of radioactive disintegration, Oppenheimer has calculated the probability of the liberation of an alpha particle when a proton strikes a lithium fluoride crystal. The result is that from one to ten alpha particles should be emitted for each 10 million protons striking the target, with velocities corresponding to 500,000 volts. This is in excellent agreement with the experimental results of Lawrence, who used a lithium fluoride crystal as a target.

A NEW ISOTOPE OF HYDROGEN

In 1931 Birge and Menzel called attention to the fact that the atomic weights of hydrogen as determined chemically and by the mass spectrograph differed slightly, and that the discrepancy could be removed by assuming the existence of an isotope of hydrogen with a mass of 2 units. From a graphical analysis of the electrons and protons in the nuclei of elements, Urey showed that isotopes of masses 2, 3, and 5 are necessary to give the curve a completed appearance.

According to the Bohr theory the spectral lines emitted by hydrogen atoms of mass 2 should be slightly displaced toward the violet in comparison with the corresponding lines emitted by ordinary hydrogen of mass 1. Further theoretical considerations indicated that the end portion of liquid hydrogen that had been allowed to evaporate would contain a higher percentage of the heavier isotope.

Urey, Breckweddie, and Murphy (*Physical Review* 40, 1) prepared samples in this manner and obtained spectograms with an instrument of high resolving power. Faint lines were found at the predicted positions, the calculated and observed displacements agreeing within the limits of experimental error. It was not possible to make accurate estimates of the relative concentrations of the two types of hydrogen atoms, but the authors estimated that the heavier isotope constituted not more than one part in 4,000 of their samples. This discovery adds one more successful prediction to the long and notable list that must be credited to the Bohr theory of spectral series.

Shortly after the work of Urey and his collaborators, the existence of hydrogen atoms of mass 2 in molecular combinations was demonstrated by two important investigations. Bainbridge (*Physical Review* 42, 1), using a mass spectrograph of high resolving power, was able to show the existence of triatomic hydrogen molecules, consisting of two atoms of mass 1, and one atom of mass 2 (H_2H). Referred to oxygen, as having a mass 16, and calculating on the basis of Aston's values for helium, Bainbridge found the

mass of the hydrogen isotope to be 2.0135 ± 0.00018 units. Hardy, Barker, and Dennison (*Physical Review* 42, 279) have determined the mass of the hydrogen isotope from an analysis of the infra-red absorption bands of hydrogen chloride. From measurements on nineteen lines in the fundamental band of hydrogen (2) chlorine (35), and seventeen lines in the band of hydrogen (2) chlorine (37), they found the mass of hydrogen (2) to be 2.01367 ± 0.00010 , which is in good agreement with the above value.

THE NEUTRON

In 1930-31, Bothe and Becker showed that certain of the lighter elements, notably beryllium and boron, emitted a penetrating radiation when they were bombarded with alpha particles. A detailed study of this radiation has been made by Irene Curie and F. Joliot, in Paris. (*L'Existence du Neutron*. Hermann et Cie. 1932). Using an ionization chamber and sensitive Hoffman electrometer the mass absorption coefficient of lead for this radiation was measured. The penetration power was found to lie between that of ordinary gamma rays and of cosmic rays. In the course of these experiments it was found that if a thin sheet of matter containing hydrogen was placed in the path of the radiation, after it had been filtered by passing through 1.5 cms. of lead, the ionization current showed a marked increase. A thin sheet of paraffin was found to double the ionization current. This suggested that the radiation caused the ejection of high speed protons from the paraffin. Later tests, including cloud expansion photographs of tracks, verified the correction of this assumption.

From their absorption measurements and track photographs the authors concluded that this penetrating radiation from beryllium produced the following effects in passing through matter: First, the ejection of fast protons, having a maximum velocity of approximately 3×10^9 cms. per second, and furthermore the longest proton tracks were in the same direction as the radiation; Second, recoil atoms,

which in helium had a range of 6 mm.; Third, the emission of electrons with energies ranging from one million to 6.5 million electron-volts.

The original hypothesis of Bothe and Becker that the radiation was of the gamma type cannot correlate these experimental facts. For in order to account for the recoil atoms and the observed ionization, it is necessary to postulate a photon with a quantum of energy of 50 million electron-volts, while the fastest emitted electrons demand only one-eighth of this energy.

A satisfactory solution of the dilemma was suggested by J. Chadwick, who with his associates at the Cavendish Laboratory, has also made a careful study of this radiation. (See articles by Chadwick, Feather, and Dee in *Proc. Royal Society, A*, 136, pp. 692, 709, and 727, also "Discussion on Structure of Atomic Nuclei," p. 375). Using a sensitive counter and vacuum tube amplifier, Chadwick measured the ranges of recoiling atoms of hydrogen and nitrogen, when they were struck by the beryllium radiation. From these ranges it was found that the maximum velocity of the hydrogen recoil atoms was 3.3×10^9 cms. per second, and of the nitrogen recoil atoms 4.7×10^8 cms. per second. Assuming the validity of the laws of impact and that the recoiling atoms were struck by a particle, it is possible to calculate the mass and velocity of this particle. Chadwick found that the mass was approximately equal to that of the hydrogen atom, and the velocity was 3.3×10^9 cms. per second, but since the assumed particle has an extremely high penetrating power, being able to pass through several cms. of lead, its electric charge must be very small compared to the charge of an electron. Chadwick, therefore, assumed that the particle consisted of a proton and an electron in very close combination, and gave it the name "neutron." Additional evidence for the lack of charge is furnished by the fact that the neutron produces no track in the cloud expansion photographs.

By assuming, therefore, that beryllium bombarded with alpha particles emits fast neutrons and weak but

penetrating gamma radiation, all the known experimental facts are correlated in a satisfactory manner. The mechanism of the transformations appears to be as follows: Beryllium (mass 9) + Helium (mass 4) — Carbon (mass 12) + neutron, and Beryllium + Helium — Carbon + neutron + photon.

Using a very sensitive cloud expansion apparatus, Dee has found that fast neutrons produce very few if any recoil electrons, and that the upper limit of ionization along a neutron track is three pairs of ions per cm. By the same method Feather has obtained photographs of 32 disintegrating collisions between neutrons and nitrogen nuclei. In twelve cases of the collisions the neutron was captured by the struck nucleus. All the evidence indicates that the particle emitted in the disintegration was an alpha particle. Similar disintegration tracks have been photographed in oxygen (*Nature*, 130, 237). This result is of great interest, for up to the present time, all attempts to disintegrate oxygen by bombardment with alpha particles or with fast protons have proved unsuccessful.

M. de Broglie and L. Leprince-Ringuet (*Nature* 130, 315) have studied the absorption of neutrons from different sources. For neutrons from beryllium it was found that a lead screen had a greater absorption than an equal thickness of copper or paraffin. Neutrons from boron, on the other hand, suffered a greater absorption in copper and paraffin than in lead. Lead was found to be very transparent to these neutrons, a screen 5 cms. thick showing scarcely any appreciable absorption. This result is startling, for all other types of radiations experience a greater absorption in lead than in the lighter elements.

The close combination of electron and proton postulated by Chadwick would have no appreciable electric field at atomic distances. Thus in passing through matter no transfer of energy to atoms should occur, except in the case of direct impact. Dee, however, failed to find any evidence of direct encounters between neutrons

and electrons. This behavior is reported to be in harmony with theoretical calculations of Bohr, which indicate that the changes of an electron and neutron interacting is proportional to the square of the ratio of their masses, which is less than one in a million. In general terms, this may be attributed to the great difference in the wave-lengths of the de Broglie waves for an electron and neutron. According to a suggestion of E. Fermi, the transparency of lead for neutrons ejected from boron may be accounted for by assuming that the wave-length of this neutron is approximately equal to the radius of the lead nucleus, but in the case of neutrons from beryllium this equality does not exist.

Heisenberg (*Zeit. fur Physik*, 77, 1 and 78, 156) has suggested that atomic nuclei may be composed solely of protons and neutrons, without individual electrons. This hypothesis avoids some of the difficulties previously encountered in explaining the emission of beta rays, and is able to account for the experiments of Meitner and Hupfeld on the scattering of hard gamma rays. But serious difficulties arise when energy considerations are taken into account. Experiments gave a mass defect for the neutron of about two million electron-volts, but the exchange energy of particles in the nucleus is much larger than this amount. From considerations based upon the principle of indeterminacy, Heisenberg obtains a value of the binding energy of an electron in a neutron which is of the order of 100 times the value suggested by experiment. The author concludes that it is not possible to give a precise definition to the concept of "binding energy" as applied to an electron in a neutron.

COSMIC RAYS

Investigation of the nature of cosmic rays continues to enlist the attention of an increasing number of physicists. Do these rays consist of electromagnetic waves of extremely short wave-length, of electrons with speeds approaching the velocity of light, or of high speed particles such as protons or neutrons? Accurate determina-

tion of the intensity of this radiation at various altitudes and at different latitudes, should enable us to give a definite answer to at least one part of this question. For if they are fast particles carrying an electric charge, the laws of electromagnetism demand that they be influenced by the earth's magnetic field. A. H. Compton (*Science* 76, 325), assisted by three co-operating parties has made a world-wide survey of cosmic ray intensities. An analysis of the results brings out two important facts: first, that the intensity of the radiation is less near the magnetic equator than near the magnetic poles, and second, that the intensity apparently increases continuously with altitude. Both results have been verified independently by European scientists. These two facts constitute strong evidence in favor of the charged particle hypothesis as opposed to the short-wave theory.

Important advances in the experimental technique of cosmic ray investigation have been reported by Anderson (*Physical Review* 41, 405) and by Blackett and Occhialini (*Nature* 130, 363). The former has obtained sixty-two cloud expansion photographs of cosmic ray tracks in strong magnetic fields. If its ratio of charge to mass is known, the energy of the particle producing the track can be calculated from the curvature of its path in the magnetic field. Assuming that the particles producing the tracks are traveling downward through the chamber, Anderson found tracks due to particles of positive charge, in addition to those due to electrons. All the evidence indicates that the positive particles are fast protons that are emitted when the struck nucleus is disintegrated by the collision. The energies of the ejected particles ranged from one million to 500 million electron-volts. While these energy values are consistent with Millikan's hypothesis that the incident cosmic rays are photons due to atom building in space, they do not exclude the possibility of other interpretations.

Blackett has obtained track pho-

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

tographs similar to those of Anderson. In his experiments the expansion chamber was placed between two Geiger-Muller counters, and the electric circuit so arranged that an expansion photograph was taken only when the counters discharged simultaneously. With this method, 75 per cent of the photographs showed tracks, whereas Anderson obtained only 62 tracks in 3,000 photographs.

In continuing his work Anderson (*Science* 76, 238) has recently obtained tracks which seem to be produced by a positively charged particle, but if this is the case the mass of the particle must be small compared to the mass of the proton. After considering several possible assumptions concerning the origin of these tracks, Anderson comes to the conclusion that the most plausible assumption is to attribute them to a high speed particle of electronic mass, but having a positive instead

of a negative charge. If additional evidence is obtained that substantiates this suggestion, it will constitute a major discovery in the history of physical science.

AMERICAN INSTITUTE OF PHYSICS

In November 1931, the American Institute of Physics was organized as an agency of cooperation in the interest of Physics. The societies participating in the establishment of the Institute were: The American Physical Society, The Optical Society of America, The Acoustical Society of America, The Society of Rheology and The American Association of Physics Teachers. The Institute published for these societies their technical journals devoted to various fields of pure and applied physics. Henry A. Barton is Director of the Institute, and John T. Tate is Adviser on Publications.

DIVISION XXI

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

AMERICAN CHEMICAL SOCIETY, Mills Bldg., Washington, D. C.

AMERICAN ELECTROCHEMICAL SOCIETY, Columbia University, New York City.

AMERICAN INSTITUTE OF PHYSICS, 11 E. 38th St., New York City.

AMERICAN MICROSCOPICAL SOCIETY, University of Illinois, Urbana, Ill.

AMERICAN PHYSICAL SOCIETY, Columbia University, New York City.

AMERICAN SOCIETY OF BIOLOGICAL CHEMISTS, Columbia University, New York City.

AMERICAN SOCIETY OF CHEMICAL ENGINEERS.

ASSOCIATION OF OFFICIAL AGRICULTURAL CHEMISTS, Washington, D. C.

COPPER AND BRASS RESEARCH ASSN., 25 Broadway, New York City.

NATIONAL RESEARCH COUNCIL, 29 W. 39th St., New York City.

SOCIETY OF CHEMICAL INDUSTRY, Pratt Institute, Brooklyn, N. Y.

SYNTHETIC ORGANIC CHEMICAL MANUFACTURERS ASSN., 1 Madison Ave., New York City.

DIVISION XXII

BIOLOGICAL SCIENCES

VERTEBRATE ZOOLOGY

BY JAMES E. KINDRED

PROFESSOR, UNIVERSITY OF VIRGINIA

MORPHOLOGY

General.—Freudenberger, from an analysis of the differences in the birth weights, growth curves, size of litters, organ weights, etc. between Wistar albino rats and Long-Evans albino hybrid rats, concludes that these values in the Long-Evans albino hybrids tend to be the same as those of the hybrids, but are not like those of the albinos of the Wistar strain.

Blood.—Dawson describes the hemopoietic loci in the urodele, *Necturus maculosus*. Erythrocytes and thrombocytes differentiate in the spleen; and granulocytes in the capsule around the liver, in the stroma of the mesonephros, the visceral pericardium, the fat body of the tail, and the pharynx. The histology of the blood and blood-forming tissues of *Proteus anguineus*, a urodele, are described by Jordan. Contrary to the conditions in most urodeles, *Proteus* lacks a leukocyte proliferation region around the liver. The leukocytes arise in the mesonephros. The sites of proliferation of the erythrocytes and thrombocytes is the spleen, but the later stages of differentiation occur in the circulating blood.

Vascular System.—Ehrlich and Cohn describe the increase in the length and width of the nuclei of cardiac muscle of the rabbit as correlated with growth of the heart. As long as the heart increases in size, these nuclear dimensions increase. The atrioventricular conduction system of the beef heart has been de-

scribed by Cardwell and Abramson. This important conducting mechanism of the heart has been found to ramify as much in the myocardium as in the endocardium, a fact hitherto overlooked.

Skin.—David has found that correlated with the genetic character of hairlessness, the skin of the Mexican hairless swine shows microscopically that the direction of the hair follicles is irregular and that the hairs are broken off. Also there is a corresponding reduction in the sweat glands and the sebaceous glands are rudimentary.

Nervous System.—Cuanjuco has shown that the neuromuscular spindles in the flexor digitorum sublimis muscle may be mono-, bi-, or plurisegmentally innervated. Muscle spindles mediate sensory impulses from the muscle and new knowledge concerning their relation to the nervous system is important for a proper understanding of muscular coordination. An hitherto undescribed sympathetic ganglion has been found in man by Leitebaum and Uhlenhuth. This structure called the mediastinal ganglion sends fibers to the trachea, bronchi and esophagus. Duncan has found from counts of myelinated and unmyelinated fibers in the ventral nerve roots of the spinal nerves of the albino rat, that the unmyelinated nerves are restricted to the thoracic and upper lumbar regions and are mostly preganglionic sympathetic fibers. The utriculo-endolymphatic

valve, a newly discovered structure of the internal ear of man (Bast, 1928) has been found by Roberts to be a constant structure in the internal ear of the albino rat.

Ovary.—The nuclear density of the connective tissue of the cortex of human ovaries was measured by Mainland to see if there were significant differences in this region in age, health and disease. No significant differences were found. The differences found were concluded to be dependent on local conditions.

CYTOLOGY

General.—Gersh has obtained excellent fixation of cellular contents by freezing tissues in liquid air at a temperature of 20° C. Sheinin has found that changes of *pH* on the acid side in adjusted solutions of heavy metals were not determining factors in the fixation of the Nissl bodies of nerve cells of the dog, cat and rabbit. The type of fixative used however, had an effect upon the preservation of these bodies. Severinghaus describes a technical method which when applied successfully to epithelial structures shows basophilic and acidophilic granules, granular mitochondria and Golgi apparatus.

Cytoplasm.—Intracellular canaliculi which connect the interior of the parietal cell cytoplasm with the lumens of the gastric glands are described by Beams and King for the rat. Golgi apparatus and mitochondria are clearly demonstrable in these cells, but are regarded as not related to the canaliculi. The ontogenetic history of the mitochondria in the liver cells of the rat have been traced by Dorothea Smith. At first the mitochondria are minute spheres which enlarge, anastomose to form first beaded filaments and then smooth filaments. This process culminates in the 20 day fetus. Pollister describes the Golgi apparatus and mitochondria in the liver cells of an amphibian (*Amphiuma*). The Golgi apparatus lies near the bile canaliculus and the filamentous mitochondria lie in the long axis of the cell. Transplantation of carcinomas into the body wall has been found by Guyer

and Claus to produce an increase in the basophilic cells of the anterior lobe of the hypophysis. Also there is an increase in vacuolization in such cells by modification of the Golgi apparatus.

Nonidez describes the parafollicular cells of thyroid gland of the dog, cat and rabbit. They arise in the follicular epithelium and later migrate into the interfollicular spaces. Cytoplasm is characterized by the presence of large argyrophil granules in material fixed by Cajal's silver-nitrate method.

Nucleus and Mitosis.—Wyckoff *et al.* have shown that the nuclei of cells prepared by Feulgen's staining technique have the same morphologic characteristics as appear in photomicrographs with ultra-violet light. The materials used were macrophages, fibroblasts, erythrocytes and lymphocytes.

Pollister describes the history of mitosis in smooth muscle cells of amphibia. The plane of the spindle is at first at right angles to the long axis of the cell, but at the late metaphase it migrates through an angle of 90° and lies parallel with the long axis of the cell. During the telophase the chromosome plates again rotate through an arc of 90° so that they eventually lie in the original plane of division.

A form of modified mitosis present in growing cells of the chick embryo is described by Stough. The nuclear membrane does not disappear during the process and the chromatin accumulates in small masses which appear to divide quantitatively and qualitatively. The nucleus divides not by constriction, but by the formation of a nuclear plate. No centrosomes, asters or spindles are present.

EMBRYOLOGY

General.—Harman and Prickett describe the development of the external form of the guinea-pig between the ages of eleven and twenty days of gestation. Their data include the time at which the several primordia arise and the increase in weight and length of the embryos.

The figures give a graphic picture of the developmental stages. Gonzalez describes the prenatal growth of the albino rat from the 11th day after insemination to birth (22 days). The size of the litter affects the growth of the fetus more markedly toward the end of gestation than at the beginning. The orientation of the fetus, direction in which head points, is a matter of chance.

Tell, from measurements of the weights of the fetus and fetal membranes during gestation in the rabbit, reports: a rapid increase in the weight of the fetus during the last ten days; placenta and membranes (amnion and chorion) remain at the same weight from 24th day to birth (30 days); and the amniotic fluid decreases in amount from 4.5 cc. at the 26th day to 0.75 cc. at birth.

The details of cellular development of the blastoderm of the duck's egg is given by Chen. The ectodermal cells of the posterior part of the blastoderm thicken to give rise to the primitive streak from which all later cells are proliferated.

Kuo has found that the hatching possibilities of chick embryos depend upon mechanical factors within the egg shell. Failure to pass any critical stage results in malposition with possible abnormality of growth. The yolk sac becomes enclosed in the body cavity as a result of the distension and contraction of the abdominal walls rather than by being forced in through the umbilicus by the contraction of the muscular amnion.

Organs.—The development of the suprarenal glands of the guinea-pig are described by Hartman and Derbyshire. The primordium of the cortex appears at 22nd day of fetal life and arises from celomic mesothelium. At about the same time the primordium of the medulla arises from cells of the prevertebral sympathetic ganglia and the aortic bodies. Those of the chick have been described by Brauer with particular reference to the relation between the appearance of chromaffine and the time of innervation. The development of the blood supply of the pancreas is described

by Wharton. He has found that the intralobular arteries, one for each lobule, arise from an interlobular plexiform vascular network and upon entering the lobule grow into the islands of Langerhans to end in glomerular-like structures.

An interpretation to explain the cause of congenital absence of the kidney is given by Boyden from analysis of histologic conditions in a 10 mm. human embryo which exhibits the critical stage in the production of unilateral renal agenesis and horse-shoe kidney. From these data and descriptions of other malformed kidneys, the suggestion is made that absence of the kidney is due to lack of appearance of the ureter or arrest in development of its primordium.

Brahms describes the development of the hypophysis of the cat from the 11-somite to 275 mm. stage. The spatial relationships of the two components, infundibulum and Rathke's pouch are described in detail.

Speidel has watched the growth of nerve fibers and the histogenic processes related to their development in the tail of the living tadpole. In this study the tadpoles were suspended in a small aquarium on the stage of the microscope. It was observed that sheath cells are concerned in the formation of the myelin sheath about regenerating myelinated nerve fibers. These fibers when first appearing as sprouts from a cut nerve fiber are naked and the sheaths are developed after a sheath cell from a neighboring fiber migrates to the regenerating fiber. Details of the relationship of the sheath cells to the fibers which have hitherto escaped observation have been clearly demonstrated in this study.

From a series of experiments Corey has found that the minimal fetal size at which a rat fetus may breathe is 18 mm. Ligation of the umbilical cord produced respiratory attempts after 51 seconds when uterine wall and amniotic sac were opened; in normal saline solution at 37.5° C., the respiratory response upon ligation of umbilical cord came after 63 seconds; fetuses shelled into the air and allowed to dry breathed

after 109 seconds. From these experiments it is concluded that the initial inspiration is normally brought about by an increased carbon dioxide tension in the blood, aided by the stimulating effect of the drying of the skin. Hamlett from a study of the embryology of the badger shows that there is a pause in development after fertilization. Monodermic blastocysts unimbedded were found in December and January and resumption of development does not take place until February 15. Twinning does not follow this pause in development as would be expected if Newman's theory of twinning (that twinning follows arrest in development) were generally true.

RESEARCH AND EXPERIMENT

Transplantation.—Pieces of developing intestine of chick embryos when transplanted into the chorion of other chicks develop myenteric or ganglionic centers and fibers if the stage of development of the transplant has reached a phase where it contains migrating neuroblasts (Van Campenhout). The primordium of the kidney of the duck when transplanted into chorio-allantoic membrane of chick and duck embryos grows into normal kidney structures, but if fully differentiated before transplanting it does not grow, but dies (Sandstrom).

Transplants of hypophysis from tadpoles, metamorphosing toads and adult toads when transplanted into tadpoles accelerate metamorphosis if the donor has metamorphosed. The action is thought to be effective through the thyroid gland (Allen). Isolated eye, ear and anterior-limb-bud primordia of 10-12 day rabbit embryos show a marked capacity for differentiation when transplanted into the omental bursa of adult rabbit. Herrick transplanted white skin from the ventral surface of tadpoles to the pigmented dorsal surface. In autotransplants the graft remained unpigmented for 100 days. In homoiotransplants (from one to another of same species) the graft became pigmented in about 15 days by replacement of the graft with cells proliferated from the neighboring

epidermis. Grafts on the ventral surface always degenerated. The cells of the spinal ganglia of the white rat when transplanted into the cerebrum of the same species survive for at least ninety days (duration of experiment). The first reaction of the transplanted cells is the development of fibers and end bulbs which decrease in numbers with age (Tidd). Transplantation of partially or fully developed fore-limbs of *Amblystoma* larvae when transplanted into other larvae produce 20 per cent to 50 per cent hypoplasia of the spinal ganglia in region of transplant (Carpenter).

Methods.—The most outstanding contribution to methods of research is that used by Speidel in studying living nerve fibers and other tissues in the transparent tail of the tadpole. Observations and motion pictures are made on the regenerating transparent tail in which the growth, myelination, movement of nerve fibers and the movements and mitotic activity of connective tissue cells and other cells are clearly visible. Clark has perfected a chamber with transparent walls which can be inserted into the ear of a living rabbit and within which can be seen the growth and movements of the tissues of the normal ear. The outline of inorganic salts in the cells of various tissues have been revealed by an incineration method in which the temperature is raised to 650° C. (Scott). Transplantations of tissues from one animal to another has been used particularly in the salamander embryo and chick embryo to find out the effects of change of environment position, etc., on the specificity of the cells of the transplant. Extracts and pieces of ductless glands have been injected or grafted from one animal to another and the effect on various tissues of the body observed. Animals have been exposed to x-ray and light of varied color to see what effects these have on the tissues. Pieces of tissue have been frozen by liquid air to see how far such a technique will preserve the morphologic characteristics of the constituent cells. The micro-surgical technique, whereby living cells may be dissected

with fine needles has been used to study the physical characteristics of cells. Modifications of various technical methods employed in the study of dead tissues have been developed with a view to giving more accurate pictures of cell structure. Cells from the vertebrate body have been cultivated outside of the body at suitable temperature under favorable environment to follow changes which take place in them.

INVERTEBRATE ZOOLOGY

By J. A. DAWSON

ASSISTANT PROFESSOR, THE COLLEGE OF THE CITY OF NEW YORK

PROTOZOA

Taxonomy and Morphology.—The cause of red water in the Gulf of Maine is stated by Philip B. A. Powers (*Biol. Bull.*, Vol. 63, No. 1) to be a new species of ciliate, *Cyclotrichium meuneri*, which, according to the author, is the first holotrichous ciliate to be associated with such an appearance in the ocean. The relation of the protozoan flagellate *Retortamonas gryllotalpae* to the species of the genus *Embadomonas* is discussed by D. H. Wenrich (*Trans. Amer. Micros. Soc.*, Vol. 61, No. 4) who establishes the genus *Retortamonas* and relegates *Embadomonas* to synonymy. The same author associated with several others (*Amer. Jour. Hyg.*, Vol. 16, No. 2) redescribes the specific characters of *Trichomonas vaginalis*, a parasite associated with man, and gives a method for the culture of this organism. Ruth Ball Biggar (*Jour. Paras.*, Vol. 18, No. 4) describes and figures four new ciliates occurring in various Bermuda sea-urchins. In a continuation of previous studies, James B. Lackey (*Biol. Bull.*, Vol. 63, No. 2) states that an unusual group of protozoa are found associated with Oxygen-poor and Oxygen-deficient waters of sewage plants. He also describes and figures six new species from these waters. As a result of experiments running over several years, Gordon H. Ball (*Amer. Jour. Hyg.*, Vol. 16, No. 1) states that he finds no evidence of a life cycle in *Chilomastix mesnili* nor was he able to induce cyst formation in his cultures. Using the relatively new method of micro-incineration, Gordon

H. Scott and E. S. Horning (*Jour. Morph. & Physiol.*, Vol. 53, No. 2) demonstrate that opalinids from the leopard frog retain, after this treatment, their distinctive morphological and cytological characters. In contrast to the situation in amphibian and mammalian nuclei, the nuclei of the protozoans left little or no ash.

Physiology, Regeneration, etc.—Studying the natural and acquired resistance of *Paramecium* to the action of venoms, Charles H. Philpott (*Jour. Exp. Zool.*, Vol. 63, No. 2) finds that genetic factors are more important than environmental factors in determining the resistance and that resistance acquired against one type of venom is ineffective against a different type. Mary E. Curtis Reynolds (*Jour. Exp. Zool.*, Vol. 62, No. 2), in performing regeneration experiments on an infusorian, *Oxytricha fallax*, which has no micronucleus, shows that the absence of this organelle does not preclude ability to regenerate and concludes that the macronucleus performs the functions of both nuclei usually found in all ciliates. In an analysis of the substances necessary for the growth of *Ameoba proteus*, William F. Hahnert (*Biol. Bull.*, Vol. 62, No. 2) concludes that a balanced salt solution containing potassium chloride, magnesium phosphate and *Chilomonas paramecium* is the most satisfactory medium. The presence of sodium in the medium is not only not necessary but actually detrimental. Frederick E. Thornton (*Physiol. Zool.*, Vol. 5, No. 2) gives evidence to prove that, measured by the centrifuge method, the viscosity of the

plasmagel of *Amoeba proteus* is at a maximum at 4.5° C. Also that the viscosity decreases progressively with a rise in temperature up to 30° C. Using the same method, L. V. Heilbrunn and Kathryn Daugherty (*Physiol. Zool.*, Vol. 5, No. 2) state that the Calcium ion increases the viscosity of the plasmagel of *Amoeba proteus* while the Potassium, Magnesium and Sodium ions decrease the viscosity. S. O. Mast (*Physiol. Zool.*, Vol. 5, No. 1) reports on the effect of local stimulation by light, the transmission of impulses and the nature of response in *Amoeba*. The author states that the effect of light is not transmitted to other parts of the organism but that the response is strictly limited to the part stimulated. The changed local condition produced by light in turn, however, produces changed conditions in other parts of the organism.

Evolution and Heredity.—All of the papers reported in this section result from the work of H. S. Jennings and collaborators from his laboratory who are carrying on extensive studies on the genetics of the ciliate protozoa. Daniel Raffel (*Biol. Bull.*, Vol. 62, No. 3), studying inherited variations arising in *Paramecium aurelia* during vegetative reproduction, states that a clone of *P. aurelia* produces offspring which differ from the original clone in many ways and that none of these have ever reverted to original type. In a further study of the same nature this author (*Jour. Exp. Zool.*, Vol. 63, No. 2) gives evidence to show that gene mutations in *Paramecium aurelia* may occur in both the macronucleus and the micronucleus. Many of these mutations are of the lethal type and are not environmentally caused. T. M. Sonneborn and Ruth Stocking Lynch (*Biol. Bull.*, Vol. 62, No. 3) show that the diverse effects of conjugation in *Paramecium aurelia* are characteristic of different clones of this organism and that it is most important to study the effects of conjugation in many different races within the species. H. S. Jennings, Daniel Raffel, Ruth Stocking Lynch and T. M. Sonneborn (*Jour. Exp. Zool.*, Vol. 62, No. 2) collaborate in

an analysis of the diverse biotypes produced by conjugation within a clone of *Paramecium aurelia*. Starting from the fact that conjugation within the clone produced a large number of clones that were constitutionally diverse, a description of the types of diversity manifested is given. General conclusions will be drawn when work now in progress on other species is completed. T. M. Sonneborn (*Biol. Bull.*, Vol. 63, No. 1) describes the production of chains and subsequent double animals in cultures of *Colpidium campylum*. He discusses the conditions under which these abnormalities appear in cultures and shows that diverse biotypes existed among them.

METAZOA

Morphology and Development.—A brief account of the ascidians of Bermuda as a whole is given by N. J. Berrill (*Biol. Bull.*, Vol. 62, No. 1) together with a description of three new species. An interesting biometric study of *Littorina obtusata* from material obtained from widely different sources leads John Colman (*Biol. Bull.*, Vol. 62, No. 3) to the conclusion that this species is correctly named and that the former species *L. littoralis* and *L. palliata* are synonyms. The life histories of two trematodes are worked out in detail. *Parorchis avitus*, a trematode from the cloaca of the gull, is shown by Horace W. Stunkard and Raymond M. Cable (*Biol. Bull.*, Vol. 62, No. 3) to have the cercaria stage in the snails, *Urosalpinx cinereus* and *Thais lapillus*; while the adults are found in the common and the roseate terns. *Epibdella melleni*, a monogenetic trematode parasitic on marine fishes, is found by Theo. L. Jahn and L. Roland Kuhn (*Biol. Bull.*, Vol. 62, No. 1) to be limited to certain families of the order *Acanthopteri*. The method by which the glochidium larva of the fresh water mussel attaches itself to the host fish, the reactions of the tissues of the host and the subsequent development of the glochidial cyst are described by Leslie B. Arey (*Biol. Bull.*, Vol. 62, No. 2). The same author (*Jour. Morph. &*

Physiol., Vol. 53, No. 1), by means of a microscopical study, shows that part of the nourishment of the glochidium is obtained from the host and part from its own structures. Utilizing the presence of localized mitochondria, Farris H. Woods (*Jour. Morph. & Physiol.*, Vol. 53, No. 2) traces the germ cells through various stages in the development of the snail, *Sphaerium striatum*. A new method of obtaining half and quarter eggs by use of the centrifuge is described by Ethel Browne Harvey (*Biol. Bull.*, Vol. 62, No. 2). The subsequent fertilization and early development of such divided eggs is described and illustrated by the author. In a continuation of her studies on insect development, Eleanor H. Slifer (*Jour. Morph. & Physiol.*, Vol. 53, No. 1) describes the external morphology of embryos of the grasshopper, *Melanoplus differentialis*, which had been kept during development at a temperature of 25° C. In an attempt to show that the changes occurring in the egg during fertilization are not entirely irreversible, Albert Tyler and Jack Schulz (*Jour. Exp. Zool.*, Vol. 63, No. 2) state they have succeeded in reversing the processes sufficiently to permit of three successive fertilizations in the same egg and in a further study the senior author (*Biol. Bull.*, Vol. 63, No. 2) shows that embryos resulting from artificial activation of *Urechis* eggs are diploid in the number of chromosomes. This condition is reached by the utilization of the first polar spindle for the first cleavage and the substitution of a mitotic division for the second maturation division. Joseph Hall Bodine and Titus C. Evans (*Biol. Bull.*, Vol. 63, No. 2) studying the consumption of oxygen and changes in body weight during development of different types of mud-dauber wasps, *Scelophron caementarium*, at constant temperatures demonstrate that diapause occurs independently of temperature but that its duration is affected considerably by temperature. The locomotor organs of the sand dollar, *Echinarachnius parma*, according to George H. Parker and Margaret A. Van Alstyne

(*Biol. Bull.*, Vol. 62, No. 2) are the spines, particularly those over the anterior part of the oral surface. Forward locomotion, burrowing and righting depend principally on coordinated motions of these spines.

Cytology.—Again attacking the problem of central body structure, Henry J. Fry (*Biol. Bull.*, Vol. 63, No. 1) gives evidence to show that, in *Chaetopterus pergamentaceus* as in *Echinarachnius*, the various types of central bodies may be various types of coagulation products of the focal area of converging astral rays. H. W. Beams and Robert L. King (*Jour. Morph. & Physiol.*, Vol. 53, No. 1) studying the Golgi bodies, mitochondria and various other cell constituents in the ganglion cells of certain *Orthoptera* claim that the Golgi bodies are ring-like, semicircular or crescentic; the mitochondria are granular, rod-like or filamentous and show no transformation into Golgi bodies. The same authors (*Jour. Morph. and Physiol.*, Vol. 53, No. 2), using the salivary glands of the grasshopper, show that the Golgi bodies here are of similar type to those of the ganglion cells; the mitochondria are also present as short rods and filaments and there is no evidence of their direct transformation into Golgi bodies. In a similar cytological study of the male reproductive cells of the pseudoscorpion, *Chelanops corticis*, Henry George Nester (*Jour. Morph. and Physiol.*, Vol. 53, No. 1) claims that there is evidence of chemical interchange between the mitochondria and the Golgi bodies. He also claims that, in the spermatid, Golgi bodies originate within the mitochondria. An interesting comparison between the structures of dividing chicken macrophages and fibroblasts, as shown by ultra-violet photomicrographs of living cells and stained preparations, is made by Ralph W. G. Wyckoff, Albert H. Ebeling and Adrian L. Ter Louw (*Jour. Morph. and Physiol.*, Vol. 53, No. 1). These structures are similar in both cases.

Polarity, Regeneration.—In respect to polarity the eggs of *Urechis* fall into two classes according to Albert Tyler (*Biol. Bull.*, Vol. 63, No. 1).

In the first type the polarity is established in the unfertilized egg as indicated by the indentation of the egg; in the second type a second indentation appears only after fertilization. Leonard P. Sayles (*Jour. Exp. Zool.*, Vol. 62, No. 1) describes the external features of regeneration in *Clymenella torquata* for cases of both anterior and posterior regeneration. The appearance of various new parts and the time involved are noted. The histology of posterior regeneration in *Chaetopterus variopedatus* with observations on the source of the neoblasts is reported by G. H. Faulkner (*Jour. Morph. and Physiol.*, Vol. 53, No. 1). In regenerating *Tubifex* according to Raymond G. Stone (*Jour. Morph. and Physiol.*, Vol. 53, No. 2) x-rays destroy the neoblasts and so inhibit completely further regeneration. A thorough review of the mechanism of autotomy in Decapod Crustaceans is given by Florence Dowden Wood and Horace Elmer Wood (*Jour. Exp. Zool.*, Vol. 62, No. 1) who figure completely the action of the autotomizer muscles and give the location of the breaking joint. The authors state that the act of autotomy is almost invariably a unisegmental reflex and that there is no evidence that it is ever volitional.

Physiology (Nervous System, Sense Organs, etc.).—That the crustacean eye hormone has wide interspecificity and thus shows a character of a true hormone is indicated by the work of Earle B. Perkins and Benjamin Kropp (*Biol. Bull.*, Vol. 63, No. 1) who, using eye stalk extract from *Palaemonetes* and from *Callinectes*, succeeded in producing contraction of the melanophores in white adapted frog tadpoles. Several authors contribute further knowledge concerning sense organs of taste in insects. Dwight Elmer Minnich (*Jour. Exp. Zool.*, Vol. 61, No. 3) finds that in bees, butterflies and flies in general such sense organs can be found in all or practically all of the head and thoracic appendages while Almeda L. Anderson (*Jour. Exp. Zool.*, Vol. 63, No. 1) shows that many of the common butterflies have taste sense organs in their legs. The legs of a

monarch butterfly may be 1200 times as sensitive as the human tongue. Quite similar results are obtained for blue-bottle flies by Selma Crow (*Physiol. Zool.*, Vol. 5, No. 1). The migration of retinal pigment in the crayfish eye is found by Rudolf Ben-nitt and Amanda Dickson Merrick (*Biol. Bull.*, Vol. 62, No. 2) to take place in total oxygen deficiency provided that carbon dioxide is present in varying quantities. The same authors (*Physiol. Zool.*, Vol. 5, No. 1) also show that there is a diurnal rhythm in the proximal pigment cells of the crayfish retina when the animals are kept in continued total darkness. That a different type of physiological control exists in the crustacean, *Macrobrachium olfersii* is the conclusion reached by John H. Welsh (*Jour. Exp. Zool.*, Vol. 62, No. 1) who finds that a daily rhythm is not found in this species. Continuing his work on the coördination of ciliary movement, Alfred M. Lucas (*Jour. Morph. and Physiol.*, Vol. 53, No. 2) concludes that the coordinating impulse for the beating of cilia has some determining effect upon ciliary inhibition since it may be transmitted through cells which have non-beating cilia and it may also cause quiescent cilia to become active. The same author (*Jour. Morph. and Physiol.*, Vol. 53, No. 2) in a study of the effect of temperature on ciliary wave length finds the wave length of the cilia in the *Modiolus* gill is constant at all temperatures between 10° and 30° C. and that it has an average length of 13.1 micra. George H. Parker (*Jour. Cell. and Comp. Physiol.*, Vol. 1, No. 1) shows that the fishing filaments of the Portuguese Man of War, *Physalia*, may reach a length of nine meters when fully extended and that they may contract to one-seventieth of this length. This contraction is regulated by rhythmic contraction waves which are neuromuscular in nature. The same author with Margaret A. Van Alstyne (*Jour. Exp. Zool.*, Vol. 63, No. 2) states that the cnidocils of the nematocysts in such coelenterates as *Metridium* and *Physalia* act as chemoreceptors and may be stimulated by many different dis-

solved substances. These authors regard the nematocysts as independent effectors, stating that no evidence for nervous control can be found. Luminescence in the firefly according to Peter A. Snell (*Jour. Cell. and Comp. Physiol.*, Vol. 1, No. 1) is under the control of the tracheal end cells since there is no activity of the luminescent organ when such cells are blocked off. This author finds that the normal flash in the fire fly, *Photuris pennsylvanica*, may vary in intensity but has a constant duration. This duration is increased if the oxygen tension is lowered until at a very low tension flashing no longer occurs but the luminous organ glows continuously. By separating the fibers of the optic nerve in *Limulus polyphemus*, H. Keffer Hartline and C. H. Graham (*Jour. Cell. and Comp. Physiol.*, Vol. 1, No. 2) have succeeded in obtaining nerve impulses from single ommatidia in the eye. They state that the discharge in a single fibre begins after a short latent period at a high rate of frequency which falls to a lower steady value which is maintained during the period of illumination.

Physiology (Respiration).—Studying the relation of oxygen tension to oxygen consumption in *Nereis virens*, Libbie H. Hyman (*Jour. Exp. Zool.*, Vol. 61, No. 2) shows that although, in the laboratory, the oxygen consumption of *Nereis* depends on the oxygen tension of the surrounding water, in a state of nature the oxygen intake is independent of the surrounding tension within moderate ranges in tension. A similar condition is shown for respiration in Termites by S. F. Cook (*Biol. Bull.*, Vol. 63, No. 2). In the case of *Termopsis nevadensis* the oxygen consumption does not decrease materially with falling oxygen tension until an oxygen concentration of approximately 2 per cent is reached. Below this tension all of the available oxygen is consumed. Light on the nature of the oxygen consumption of *Nereis* eggs before and after fertilization is thrown by E. S. G. Barron (*Biol. Bull.*, Vol. 62, No. 1) who finds that the total oxygen consumption from the beginning of fertilization to the

two-cell stage is not greater than the consumption for a similar period before fertilization. The author considers that the enormous increase in oxygen consumption in fertilized starfish eggs as reported by Loeb is exceptional. Further studies in the functions of gills in burrowing may flies by Ann H. Morgan and Margaret C. Grierson (*Physiol. Zool.*, Vol. 5, No. 2) leads the authors to the conclusion that the tracheal gills in the nymphs of *Hexagenia recurvata* are respiratory organs since nymphs deprived of gills died relatively soon.

Physiology (Light, Irradiation, etc.).—The effects of x -rays on various stages in the life history of the bean weevil are studied by G. L. Hey (*Jour. Exp. Zool.*, Vol. 64, No. 1) who shows that irradiation in varying dosages causes abnormalities in the larvae and loss of fertility in the adults. Since none of the abnormal forms ever laid eggs the effect of the abnormality in heredity was undetermined. V. Obreshkove and A. J. King (*Physiol. Zool.*, Vol. 5, No. 3) report an abnormality produced in the cladoceran, *Simocephalus vetulus*, produced by x -rays. This abnormality takes the form of an invagination of the brood pouch which becomes more pronounced after each ecdysis. The effect of x -rays on *Drosophila melanogaster* according to W. G. Moore (*Biol. Bull.*, Vol. 62, No. 3) is somewhat differential since in general the fertility of males is more affected than that of females.

Physiology (Temperature Effects).—Studying the effect of temperature together with that of crowding in *Moina macrocopa*, L. A. Brown and A. M. Banta (*Physiol. Zool.*, Vol. 5, No. 2) show that the proportion of males produced by *Moina* mothers is characteristically different for each of several temperatures. The peak of male production is reached at temperatures between 14° and 17° C. and also at or above 30° C. They suggest that possibly male production is a function of the viscosity of the daphnid egg. T. Cunliffe Barnes and Henry I. Kohn (*Biol. Bull.*, Vol. 62, No. 3) show that in the ant, *Lasius*,

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the leg spread and the frequency of leg movements increase as the temperature rises. The speed of progression as influenced by temperature shows a critical temperature at 20° C.

Physiology (Nutrition, Chemical effects, etc.).—Alice M. Bahrs and Rosalind Wulzen (*Physiol. Zool.*, Vol. 5, No. 2), in a study of the growth promoting power of the mammalian kidney as used with planarian worms, claim that this power varies with different parts of the kidney and that the cortical portion of the kidney contains most of the growth promoting substance. The intracellular hydrogen ion concentration of the *Fundulus* egg is found by Robert Chambers (*Jour. Cell. and Comp. Physiol.*, Vol. 1, No. 1) to be approximately represented by a pH value of 6.8. Raymond Pearl (*Jour. Exp. Zool.*, Vol. 63, No. 1), working on the influence of density of population on egg production in *Drosophila melanogaster*, shows that the orderly change

in rate of egg production with increasing densities of population may be described as the same type of mathematical equation as that which relates the mean free path of molecules to density of gas.

Genetics.—Continuing his studies on the wasp, *Habrobracon*, P. W. Whiting (*Jour. Exp. Zool.*, Vol. 62, No. 2) announces a high degree of asymmetry in pigmentation in mosaics of this species. This asymmetry is interpreted as evidence of genetic factors for pigmentation. The same author (*Biol. Bull.*, Vol. 63, No. 2), in discussing further the mosaic condition in males of *Habrobracon*, lists 16 traits for this condition and discusses the genetic possibilities in mosaicism. In hybridization experiments between *Drosophila melanogaster* and *Drosophila simulans*, R. L. Biddle (*Genetics*, Vol. 17) traces the inheritance of bristles and states that males show modifications of bristles to a greater extent than females.

VERTEBRATE PALEONTOLOGY

BY FREDERIC B. LOOMIS

PROFESSOR, AMHERST COLLEGE

OSTRACODERMS

The year 1932 is marked by a considerable reduction in field exploration, but shows no reduction in the matter of preparing new material for exhibition, or in the research going on. The group of animals which is in the fore-front this year is the *Ostracoderms*, those earliest and most aberrant of fishes. Dartmouth College, which already had a most outstanding collection of these fish, sent Professor Patten to the island of Oesel in Esthonia where he collected some 3,000 specimens belonging to this group, but most unfortunately he died almost immediately on his return to Hanover. The Museum of Comparative Zoology at Harvard acquired a large series of *ostracoderms* from the famous locality on Spitzbergen; and Princeton University, which found a new locality for them

at Bear Tooth Butte, Wyo., last year, this summer made a large collection there. The result of these collections is that this field will be extensively studied the coming year in this country. The Cleveland Museum has continued collecting fishes in the Lower Devonian in northern Ohio.

REPTILES

The reptiles continue to be better known as a result of further new finds which make possible the restoration of complete skeletons where before the forms were only known from fragments. The University of Michigan found a phytosaur with the dorsal armor in undisturbed position. The American Museum of New York found three dinosaur skeletons, the bipedal *Camptosaurus*, and two armored forms heretofore known only by fragments, *Nodosaurus* and *Hoplitosaurus*.

XXII. BIOLOGICAL SCIENCES

BIRDS

Among the birds a large hawk was found by the National Museum in the Oligocene, and the Harvard Museum has continued to excavate large quantities of bone in the lower beds of the Oligocene which will give a good deal of light on birds. This avian fauna is showing that a surprisingly large number of the living families of birds had their origin before this period and have retained a stability for surprisingly long periods.

MAMMALS

Fewer than usual new mammals have come to light though several museums obtained one or more complete skeletons of rare forms. The Colorado Museum obtained skeletons of the little camel *Stenomylus* from Nebraska, making over 60 skeletons of this form which have come from this one quarry. They added to their set of *Meshippus* skeletons and to the rhinoceros, *Trigonias*. This institution also found an elephant skeleton similar to the European species *Elephas meridionalis*, which Osborn has described as a variety of that species and considers it as linking this type to the Texas form, *E. imperator*. Nebraska likewise yielded both to the University of Nebraska and to the South Dakota School of Mines more material of the shovel-toothed elephants. Of early saber-toothed cats Princeton received two, and in addition a new type between the typical *Dinictis* and that very specialized one known as *Eusmilis*. Other parties collected less striking but perhaps more important material in beds where the preservation is less complete. For instance Frick continued his collecting in Alaska where hydraulic stripping is being done, and also his work in the Barstow beds of southern California. The American Museum, working with the Florida Survey gathered several skeletons of sirenians, one of which has been mounted and started G. G. Simpson on his study of the evolution of the group, which confirms the idea that they came from the same stock as the elephants. Another locality which promises important results is

the quarries being worked by the Carnegie Museum in the Uinta beds in Utah which are yielding material transitional between the Eocene and the much more modernized Oligocene animals.

MUSEUM COLLECTIONS

The museums have had an opportunity to catch up to some extent with the preparation of their collections. The Royal Museum at Toronto has completed a new wing more than doubling the exhibition space, giving a large hall to dinosaurs and another to the other vertebrates. In the dinosaur hall they have added skeletons of the crested dinosaur, *Corythosaurus*, and two skeletons of the especially interesting toothless bird-like dinosaur, *Struthiomimus*. The American Museum is completely rearranging its mammal exhibition to make the history of the various families more expressive. They have added to their already excellent horse series a skeleton of *Merychippus*, and in the dinosaur hall have put up a skeleton of *Stegosaurus* with its armor of spikes and knife-edged vertical plates. The Amherst College Museum added two more skeletons, *Merychius* and *Promerychochoerus*, to its series of oreodonts, making ten different oreodonts with their varied adaptations. They also prepared out a skeleton of the little carnivor, *Oligobunis*, which shows many connections between *Cynidictis* and the marten group. The Field Museum in Chicago is getting its large collection of South American edentates on exhibition, one large habitat group including a skeleton of *Pronothotherium*, a sloth hitherto known only from fragments. Princeton also added a sloth, *Hapalops*, to its exhibits. A couple of years ago came the announcement of fine dinosaur footprints on the Peace River in Canada. This year the Victoria Museum in Ottawa has placed a series of these on exhibition. Though small the skeleton of *Theropseura* which Chicago University has prepared is important as it serves to connect the pelycosaurs with the less aberrant reptiles.

BOTANY

PUBLICATIONS

Among the publications, the year is marked by the completion of the Princeton Patagonian Reports, the parts, *Aves of the Santa Cruz Beds* by Sinclair and Farr, and the *Nature and Origin of the Santa Cruz Fauna* by W. B. Scott, closing the gaps in this great undertaking which describes and illustrates in superb style the earlier faunas of extinct animals in South America, and has been some 20 years in completing. G. L. Jepsen found and described a small jaw from the Wind River formation of Wyoming, which he named *Tubulodon* and considers it to be the earliest and only known fossil ancestor of the peculiar African animal known as the aardvark. While published by the British Museum, Pilgrim's *Catalogue of the Pontian Carnivora of Europe* is also a contribution to American Paleontology for the author under-

takes a careful discussion of the relationships of all the carnivores of the world, and does much to establish the phylogenies of the different families. This study fits into that of W. D. Matthew on the *Phylogeny of the Dogs* and incidentally the bears, and also with Frick's *Hemicyonidae and the American Bears*. Loomis' *Small Carnivora of the Miocene* also belongs in this group, in which the ancestry of the civets and martens is considered. With these varied approaches the history of the carnivores is rapidly being brought into shape, though there are several gaps apparent which will stimulate further search in the field. A beginning of the summary treatment of the *ostracoderms* has already appeared in W. L. Bryant's *Lower Devonian Fishes of Bear Tooth Butte*. There is apparent this year a tendency to summarize the knowledge of various groups.

BOTANY

BY MILDRED E. MATHIAS

RESEARCH ASSOCIATE, NEW YORK BOTANICAL GARDEN

BOTANICAL SOCIETIES

American Association for the Advancement of Science.—The annual meeting of the Association, including the Botanical Section, and its affiliated societies was held in Atlantic City during the Christmas holidays. As usual the program consisted of general symposia and individual reports on research projects. The summer meeting of the Association was held in Syracuse in June. As in the previous summer informality was the keynote of the meeting with field trips and general symposia rather than formal presentation of papers. The Southwestern Division of the Association held its meeting in Denver in April. The annual meeting of the Pacific Division and affiliated societies was held in June in Pullman, Wash.

American Society of Plant Physiologists.—The summer meeting of

the Society was held at Madison in July jointly with the Corn Belt Section of the American Society of Agronomy. The program was built around the environmental relations of plants.

International Genetics Congress.—One of the most important meetings of the year was the Sixth International Genetics Congress at Ithaca, New York, in August, attended by numerous American and European plant geneticists. Noteworthy advances have been made in the field of genetics in the last five years, particularly in the application of cytological investigations to genetical problems. In fact this Congress might have been termed a Cytology Congress since a great majority of the discussions and papers dealt with cytological phases of genetics.

New Societies.—Two new societies have been organized in the last year,

—the Genetics Society of America, a reorganization of the Genetics Sections of the American Society of Zoologists and the Botanical Society of America, and the Mycological Society of America, a reorganization of the Mycological Section of the Botanical Society of America.

PLANT PHYSIOLOGY

Seed Germination and Growth.—

On account of the numerous practical applications the investigations in plant physiology usually exceed in number those in other fields of botanical research. Studies of seed germination and growth occupy the attention of many workers. Methods of inducing germination of seeds have been studied and studies made of the moisture content and high temperature in relation to germination. Important studies on the growth hormone of plants have shown it to be an acid.

Hydrocarbon Gas Effects.—Investigations on the effects of hydrocarbon gases have been continued by the workers at Boyce Thompson Institute for Plant Research. These studies have given us the most sensitive tests yet devised for the presence of the saturated hydrocarbons.

Light and Plant Behavior.—The relationship between light and plant behavior is a subject for continued study not only on the effects of the length of day and artificial lighting but also on the effects of ultra-violet radiation.

Plant Composition and Nutrient Studies.—Studies of the chemical composition of plants and the mineral nutrient relations have been continued by numerous investigators with papers published on the "Effect of boron on the growth of lettuce," "Seasonal changes in the composition of the non-protein nitrogen in the current year's shoots of Bartlett pear," "Methods of determining glucose and fructose in corn tissues," "Relation of age and seasonal conditions to composition of root, petiole, and leaf blade in rhubarb," and "Effects of the physical environment on the physico-chemical properties of plant saps." General papers of in-

terest are two by McNair on the interrelation between substances in plants and the relation of these substances, oil, resins, carbohydrates, etc., to climate of habitat.

MORPHOLOGY AND ANATOMY

Embryology.—Contributions have been made to our knowledge of embryology with papers on the "The embryogeny of *Chamaecyparis obtusa*," "Microsporogenesis and embryogeny in certain species of *Bromus*" and "The development of the embryo of *Kochio scoparia*."

Research Papers.—Research in fruit anatomy and morphology has led to the publication of papers on "Seed development in *Amaranthus caudatus*," "Morphology and anatomy of the fruit of *Hicoria pecan*," "Carpel dehiscence in *Firmiana simplex*," and "Anatomy and microchemistry of the cotton seed."

Leaf development has been studied by Mounts with special reference paid to the manner of growth and the development of the islet tissues in *Vitis* and *Catalpa*. Schaffner has continued his "Studies in determinate evolution" with a paper on the orthogenetic influence of the degree of divergence between the carpel and the foliage leaf.

Flower Production.—Hick's paper on "Flower production in the Lemnaceae" is of particular interest since flowers have been so rarely observed in that family. He presents a list of conditions which he considers necessary for flower production.

Other Papers.—The characteristics of the xylem of North American *Abies* have been studied by Wiesehuegel; Winters has published a paper on the "Stem form of White Oak"; Skutch has investigated the "Anatomy of the axis of the banana"; Wolfe has made a study of the "Annual rings of *Thuja occidentalis* in relation to climatic conditions and movement of sand." Studies of the morphology and anatomy of lower forms include papers on the "Morphology of the sporophyte of *Riccia crystallina*" and the "Nature and development of the tracheids of the *Ophioglossaceae*."

TAXONOMY

Photographing of type specimens in European herbaria has been continued by MacBride with the aid of a Rockefeller grant. These photographs are of inestimable value to the research worker who has not had the opportunity of examining the specimens and will be of great service in the accurate determination of collections.

Monographic studies of several groups of flowering plants have been continued during the past year. Dr. Bailey has published the results of his many years of study on the blackberries. The general *Cuscuta*, *Cosmos*, *Sanchezia*, *Jasminum* and *Mendozara* have been monographed or revised by American workers. L. B. Smith has continued his studies in the *Bromeliaceae*. A systematic treatment of the section *Saccanthera* of the genus *Pentstemon* has been published by Keck in which special reference has been given to the probable evolutionary development of the various species. A. C. Smith has published a monograph of the American species of *Tribaudieae*, a tribe of the *Vacciniaceae*. Wherry has continued his studies on the genus *Phlox*.

Plant Distribution.—Investigations on plant distribution have been made in various parts of the country. Such distributional information is always of interest to the taxonomic worker.

Floristic works of local interest include papers on "The Pteridophytes of San Diego County, California," "List of algae from Missouri," a list of "The Pteridophytes of Wyoming," an "Annotated list of vascular plants collected on the north shore of the Gulf of St. Lawrence, 1927-1930," the "Trees of Indiana," "The Cacti of the Pyramid Peak region, Dona Ana County, New Mexico," "Ferns of the Lake Dunmore region, Salisbury, Vermont," "The Hepaticae of Cold Spring Harbor and vicinity," "The desmids of Michigan," and a "Preliminary report on Michigan algae."

MYCOLOGY

Studies of Special Interest.—A new center for plant pathology inves-

tigation is the Division of Plant Pathology of the Rockefeller Institute. Of special interest are such studies as those recently made on the black stem rots and leaf-spot of *Pelargonium* and the *Pythium* crown- and stem-rot of *Begonia* in which the diseases were studied in their various aspects and methods developed for their control. Diseases of roses, stocks and lilacs are a few others of horticultural interest which have been investigated. The grower of fruit trees will be interested in the recently published results of studies on the red-cedar rusts of apples, a *Botrytis* stem infection in pears, and a bacterial spot disease of peaches. The diseases of nut trees have commercial importance, and investigations concerning their control are of value to the grower. A recent study of pecan rosette shows that it is not a parasitic disease but iron chlorosis which may be treated chemically.

Grains.—The various diseases of the grain crops occupy the attentions of numerous workers. One study of importance concerns the inheritance of resistance to these diseases especially in hybrid varieties which have been developed. Other studies have been made on the physiologic forms of the infection and the influence of the host metabolism on the infection type.

Crown gall studies, interesting to botanists and medical investigators alike, include works by Riker and Bonfield on "The development of crown gall, hairy root, and wound overgrowths in treated soil" and Riker, Hildebrand and Ivanoff on "The development of crown gall, hairy root, and wound overgrowth in glass cylinders."

Miscellaneous Studies.—The effect of temperature on the rate of decay of sugar beets, a study of tomato diseases, the relation of environment to watermelon wilt, a study of the bacteria associated with the chocolate-spot disease of broad beans, the effect of the hydrogenion concentration of the soil on the growth of the bean and its susceptibility to dry root rot, reports on *Verticillium* wilt and mildew of cotton, and investigations on the diseases of date palms

all represent advances in knowledge of plant diseases and control. Studies by the mycologists interested in the "pure science" include such taxonomic works as Guba's "Monograph of the genus *Pestalotia*," "Myxomycetes of northwestern Oregon" by Peck and Gilbert, and Baxter's study on polypores. Of interest to the systematist is a paper on "The basis for *Sclerospora Sorghi* as a species" by Weston and Uppal in which evidence is presented concerning the characters of a distinct species. Lindegren has made a contribution to the genetics of *Neurospora* with papers on "The inheritance of response to heat-treatment" and the "Segregation of sex factors in asci" of certain species. Studies on the morphology and development of fungi include works on "The development of the ascocarp" in Thielavia, "The cytology of a diploid sterile Hymenomycete," and "The comparative morphology of germinating ascospores in certain species of the Hyteriaceae."

GENETICS AND CYTOLOGY

Chromosome studies, particularly those relating to the gene, occupy the center of attention at present in both plant and animal genetics. The biological investigators are now being aided by the workers in the physical sciences who are attacking the problem from the physicist's point of view. This cooperation between the physicist and geneticist should lead to major results in the investigations of the gene and its rôle. During the past year it has been found possible in certain chromosomes to determine definitely the characters of certain genes and to determine the size of the gene itself. Most of these studies have been made on maize but work has been continued on the genetics of *Datura* and *Oenothera*. It has been shown that high temperatures cause modifications of the processes associated with nuclear and cell division and also modifications in the architecture of the individual chromosomes. More general papers concern the control of the chromosome by the genotype, the time of action of genes

and their bearing on evolutionary problems, and "The cytological mechanism of crossing over."

Wheat and Cotton.—The study of the genetics of wheat has been continued with cytological investigations of certain wheat hybrids. Hutchinson has added to his series on "The genetics of cotton" with papers on "reversal of dominance in an interspecific cross," "Inheritance of chlorophyll deficiency," and a study of "Crumpled," a new dominant produced by complementary factors.

Other papers of interest include "Meiosis in the genus *Hypericum*," "A comparison of the plastid with the Golgi Zone," "Microsporogenesis and chromosome behavior in *Nothoscordum bivalve*" and "Pollen grain studies as an indication of fertility in hybrids."

ECOLOGY AND PLANT GEOGRAPHY

The majority of the ecological studies concern the investigations of plant communities including the problems of successions and interrelationships. A general paper on this subject of interest to all ecologists has been published by Shelford on the "Basic principles of the classification of communities and habitats and the use of terms." Investigations have been made on the osmotic concentrations of chaparral, coastal sage brush and dune species in Santa Barbara County, California, plant successions and grazing capacity, ecology and relative importance of the dominants of tall-grass prairie, the floristics of a young lake, forest successions as indicated by fossil pollen a comparison of transpiration rates in chaparral "Life forms and leaf size classes of certain plant communities of the Cincinnati region" and the "Vegetation on north and south slopes of mountains in southwestern Texas." A monographic study has been published on "The habitats and composition of the vegetation of Okefinokee Swamp, Georgia." Another paper of particular interest is a comparison of three dune associations—on the New Jersey coast, a beach in Illinois and on the Oregon coast. The mention of these various fields of investigation

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serves as an indicator of the work under way by plant ecologists.

MISCELLANEOUS PUBLICATIONS

Paleobotany.—An excellent popular summary of paleobotany has been prepared by Berry and published in the *Brooklyn Botanic Garden Record* as "The story of fossil plants." More technical papers on paleobotany include descriptions of various new species of fossil plants and lists of the fossil flora of certain areas. Potter has published an interesting paper on the "Botanical evidence of a post-pleistocene marine connection between Hudson Bay and the St. Lawrence Basin."

Soil and Plant Growth.—Russel's new edition of *Soil Conditions and Plant Growth* is an excellent summary of our present knowledge of the effects which soil, its composition, temperature, moisture and micro-organic population have on plant growth.

Man and Microbes.—Bayne-Jones' book on *Man and Microbes* published as one of the series issued in connection with the celebration of the Chicago World's Fair in 1933 deals in the broadest manner with the ways in which microbes, particularly bacteria and yeasts, enter into the affairs of man. It also treats the relationship of bacteria to plant life in a popular manner.

OTHER PUBLICATIONS

Local floras and plant lists include *Forest Trees of Illinois* by Mattson

and Miller, Deem's *Trees of Indiana*, a revised edition of his earlier well-known work; a new edition of Blatchley's *Indiana Weed Book* and Small's *Ferns of Florida*. Rydberg's *Flora of the Prairies and Plains of Central North America*, completed for the press by Dr. Howe after Rydberg's death, fills a long-felt gap in the list of local floras. The region it covers has been partially included in floras of northeastern America and of the Rocky Mountain region but neither group of floras has proved satisfactory for the worker in this intermediate region. Other works of interest to the amateur or professional gardener include Wildon's *Garden Roses*, Ortloff's *Annuals in the Garden*, Murray's *Planning and Planting the Home Garden*, Farrington's *The Backyard Garden* and Briggs' *Gardening in the South*, which gives advice on landscaping home grounds and may be found useful in many other parts of the country.

Cacti.—Three recent books on cacti are of interest both to the professional and amateur botanist. Shreve's *The Cactus and Its Home* is an authoritative discussion of the habits of cacti with notes on their cultivation. Thornber and Bonker have published their book with the title *The Fantastic Clan, The Cactus Family*. As the title indicates the book stresses the fantastic or novel aspects of the cacti. Schulz's book on *Cactus Culture* will be of special interest to the gardener.

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By H. K. HAYES

PROFESSOR, UNIVERSITY OF MINNESOTA

6TH INTERNATIONAL GENETICS CONGRESS

This meeting, held August 24 to 31, 1932 at Cornell University, was attended by representatives from the United States and foreign countries, interested in both the pure and applied phases of genetics. The program consisted of morning sessions

on subjects of general interest and sectional programs in the afternoons of a more technical nature. One of the outstanding features of the plant phases of the Congress was the extensive exhibits of both living material in the plant breeding gardens and laboratory specimens. These exhibits furnished concrete evidence of

the importance of Genetics in the improvement of Economic Crop Plants. The first volume of the *Proceedings* of the Congress containing the invitation papers, is not yet available. Volume 2, containing a condensed summary of the papers given in the sectional programs, and an explanation of the exhibits, was available at the time of the Congress.

DISEASE RESISTANCE

Papers and Discussion.—One of the sections of the Genetics Congress entitled "Genetics and Phytopathology" emphasizes the importance of disease and insect resistance. Papers by F. N. Briggs and E. F. Gaines featured the progress in obtaining bunt-resistant wheats and the methods employed. Briggs emphasized the importance of the back-cross method of transferring resistance to varieties of wheat without greatly changing their present characters, except in the one respect of resistance. M. M. Hoover and R. J. Garber, discussed some advances in our knowledge of resistance to smut in maize. J. H. Parker and R. H. Painter gave a review of their work on insect resistance and summarized some of the important studies in this field. Their own studies featured the resistance of some varieties of wheat to Hessian fly injury and of varieties of sorghums to chinch bugs. G. M. Reed summarized his studies of the inheritance of resistance to loose and covered smuts in oats. H. K. Hayes and E. S. McFadden gave the present status of breeding for stem rust resistance in spring wheat while E. C. Stakman gave a summary of the causes and nature of inherited differences in some fungi responsible for several of the more important pathogenic diseases of crop plants. The special exhibits, the brief abstracts, and the explanation of the same in Volume 2 of the *Proceedings*, give a good idea of the methods used, and results obtained in this interesting field of disease resistance.

Raspberry Mosaic.—W. W. Rankin (*Seed World*, Vol. 32, No. 6, p. 40, 1932) describes two new raspberries tested at Geneva, New York, that were

obtained as seedlings, and have remained nearly free from mosaic for a period of four years in the test plots. One is a red raspberry called Newburgh, and the other a black raspberry named Naples. No infection has been observed in Newburgh in the test plots or by growers throughout the State. Only a few Naples plants have been observed that were infected.

Wheat Stem Rust.—Hope and H-44 Spring wheat varieties were obtained from crosses of Yaroslav Emmer and Marquis by E. S. McFadden. They have proven highly resistant to various forms of wheat stem rust found in the Spring wheat belt of the United States and Canada. An earlier suggestion has been made that the resistance to stem rust is dependent, in some cases, on the time of opening of the stomata in the morning. This type has been called functional resistance. Thus varieties with late opening of the stomata, after the dew had dried off, might escape infection. As Hope and H-44 were commonly resistant to all forms of stem rust in the field it was thought that this might be a case of functional resistance. R. F. Peterson (*Scientific Agriculture* 12: 155-173, 1931) presents studies with crosses of H-44 and Reward, carried out under field conditions, and under epidemic conditions induced by over 30 physiologic forms of rust. The time of opening of the stomata was determined. There was no correlation between the time of opening of the stomata and degree of infection of the various hybrids worked with.

Wheat Hybrids.—Partly fertile hybrids have been obtained by Hollingshead (*Journal of Heredity* 23: 247-253, 1932) in crosses between Khapli Emmer *Triticum dicoccum*, with 28 chromosomes diploid, and H-44 wheat. In previous attempts to cross Khapli and other vulgare wheats, such as Marquis, the crosses have been made with difficulty and the F_1 hybrids obtained have died before maturity. Khapli, has physiological resistance to many forms of stem rust, therefore, its type of resistance appears of much practical value. As

the H-44 variety was obtained from a cross of Emmer and Vulgare wheat, Hollingshead thought it might be easier to cross Khapli with H-44 than with other vulgare wheats as a part or all of some of the chromosomes of H-44 must have been obtained from its Emmer parent. The cross proved easy to make, and 58 grains of seed set on 125 florets of H-44 when crossed with Khapli. When these seeds were sown they gave normally vigorous F_1 plants which, on an average, produced one to several grains per head. These results are of considerable practical importance and indicate the possibility of obtaining a vulgare wheat with physiological resistance to all forms of stem rust.

CAUSES OF PREMATURE SEEDING IN VEGETABLES

Studies of H. C. Thompson and co-workers (see *Cornell University Agr. Exp. Sta. Bulletins* 480, 488, and *Memoir* 140) on the causes of premature seed development of some vegetable crops, (celery, cabbage) have shown that temperature is a major factor in premature seeding. Chroboczek (*Am. Soc. Hort. Sci. Proc. for 1931*: 323-327, and *Ph.D. Thesis, Cornell*, 1932) has continued the studies of the effect of ecological factors on seed stalk development in the beet, *Beta vulgaris* L. Thus beets of the Crosby Egyptian variety kept constantly in a temperature of 50 to 60° F. went to seed 10 per cent in the first year, although those kept in a medium temperature of 60 to 70° F. showed mostly vegetative development. In a cool house, plants developed seed-stalks under an 8-hour daylight, while in a warm house with strong continuous illumination only a few plants went to seed. By regulating temperature above 60° F. sugar beet plants were kept in a flowerless condition for $3\frac{1}{2}$ years even under a photoperiod of from 13 to 15 hours, while plants of the same variety, grown in a cool greenhouse under continuous illumination, produced seed-stalks in 53 days from planting. A knowledge of the factors inducing seed-stalk formation is important to the grower who wishes

vegetative development and to the breeder who may wish to stimulate early seed development.

METHODS OF STUDYING HARDINESS IN PLANTS

Cold Resistance. — Considerable progress in methods of studying cold resistance are being made. Peltier and Tysdal (*Journ. Agr. Res.* 44:429-444, 1932) have described their studies with alfalfa strains and varieties. Alfalfa strains to be tested are seeded in small plots or cypress flats in alternate rows with a variety of known hardiness and allowed to grow, under optimum conditions, in the greenhouse for one month. They are then transferred to a hardening chamber and held at 2° to 4°C. for two weeks. Before placing in freezing temperatures the soil is brought to a high and uniform moisture content. The flats or pots are placed in the freezer room for a number of hours at a temperature between —10° and —20° C., the length of exposure being sufficient to kill about 50 per cent of the control alfalfas. This is a rapid and consistent method of learning the relative hardiness of varieties and strains.

Electrical Conductivity. — Investigations of the hardiness of plants by the measurement of electrical conductivity have been made by Dexter, Totttingham, and Graber (*Plant Physiology* 7:63-78, 1932). This is accomplished by measuring the extent of exosmosis of electrolytes from suitable frozen tissues. This method was applied with satisfactory results to a large group of varieties of alfalfa, to three strains of red clover and over twenty varieties of small grains. Another method used is to determine the electrical conductivity of the tissue itself after freezing.

HYBRID TREES FOR PULPWOOD

R. H. McKee (*Scientific Monthly* 35, p. 271, 1932) discusses the growing of trees for pulpwood. He states that we are now using our supply of pulpwood in the United States about four times as fast as we grow it. Studies by McKee and others of the hybrid poplar, known as *Populus Eu-*

genet, show that this species will grow into trees with a diameter of 8 inches in 20 years and that it has a wide range of adaptation. By selection and crossing, individual trees have been obtained that grow more rapidly than any variety of trees now used for pulpwood. They also have satisfactory fiber qualities. These trees can be propagated from cuttings, and patents have been applied for under the new plant patent law.

CROPS AND CIVILIZATIONS

E. D. Merrill of the New York Botanical Gardens, has an interesting and condensed summary (*Scientific Monthly* 34:362-365, 1932) of this subject. The places of origin of agricultural plants agree with the centers of origin of civilizations. These in

America are in the highlands of Mexico, in Peru, with a tropical sub-center in Central America, and in the old world in Eurasia, Asia Minor, certain parts of the Mediterranean basin and restricted areas in India, China and Central Asia. He states "that every important food-producing cultivated plant was already in cultivation at the dawn of recorded history." Lists are given of 13 cereals, 30 vegetables, 17 fruits, and in the warmer regions of 15 tropical fruits of old world origin. Important crops from America are more limited, although maize is very valuable. Among crops of American origin are the potato, sweet potato, lima, garden, and field beans, squashes, pumpkins, and in the tropical regions, canava, arrow root, chayote, and some fruits.

ENTOMOLOGY

By E. PORTER FELT

CHIEF ENTOMOLOGIST, BARTLETT TREE RESEARCH LABORATORIES

PLANT QUARANTINE

Regulations and Embargoes.—The quarantine situation has been very much to the front the past twelve months. The rigid economy program of the government was presumably one of the basic factors leading to reconsideration. Another was the extended distribution of several of the insects coming under regulation. The actual efficiency of quarantine measures was also closely examined. A conference was held, by direction of the Secretary of Agriculture, February 18, to consider the status and possible discontinuance of the quarantines on the European corn borer, the Japanese beetle and the withdrawal of Federal certification of narcissus bulbs for interstate movement. It was decided to continue these services. The failure of Congress to provide adequate funds compelled the Secretary of Agriculture to revoke the European corn borer quarantine, effective July 15. This was quickly

followed by more or less drastic quarantine regulations or embargoes by California, Florida, Georgia, Illinois, Iowa, Kansas, Louisiana, Mississippi, Nebraska, Nevada, Oklahoma, Texas and Wisconsin, designed to give protection from the shipment of infested products.

The Japanese beetle has been found in many new localities the past season, namely 117, in states partly covered by quarantine, and it was also discovered in eight additional states, a total of 17 infested states besides the District of Columbia. A hearing on the advisability of continuing this quarantine was held at Washington, D. C., in October. An extension of the regulated area may be expected.

Gypsy Moth.—A gypsy moth development has not eased the quarantine situation, since about seventy square miles near Pittston, Pa. were found infested in September. This is remote from any other colony and many miles beyond the Barrier Zone,

which has been maintained so successfully for the past nine years, and coincides approximately with the western boundary of New England. Provision must be made for the adequate handling of this infestation or there must be a material modification of Federal and State policy in regard to this destructive pest of both shade and forest trees.

Narcissus Bulb.—The narcissus bulb quarantine was revised, effective June 20, the principal modification being an elimination of a requirement for fumigation on account of infestation by the lesser bulb fly.

The pink bollworm was found late in the season in cultivated cotton in several northern Florida localities and as a result the Pink Bollworm Quarantine, No. 52, has been extended to include the two infested Florida counties and four adjacent ones.

INSECT INJURIES

Elm Leaf Beetle.—The depredations by the elm leaf beetle in 1931 have continued with possibly equal severity in 1932, there being general injury in New England, the Middle Atlantic and East Central States. Isolated outbreaks have occurred in Kansas, Washington and Oregon.

The Japanese beetle as a serious pest has not abated, severe damage to shade trees being more widespread than last year, and the discovery of many new infestations the past season increases the probabilities of much more widespread injury in the near future.

The Mexican bean beetle has continued as a serious pest of beans, and is still extending its range northward. It was reported for the first time from Bennington and Rutland counties (Vermont), from central New Hampshire and from New York and Cumberland counties in Maine.

The gladiolus thrips, a recent addition to the list of destructive insects, has severely injured many plantings in southern New England, New York, Pennsylvania, Michigan and has been reported from Florida and California.

Rocky Mountain spotted fever, a tick-borne infection, has been re-

ported this year from Maryland and Virginia, in 41 cases.

BIOLOGICAL CONTROL

This phase of economic entomology has received much attention during the last few years, one of the outstanding phases being the introduction from Peru of two parasites of the sugar cane moth borer. This was undertaken by agents of the Federal Bureau of Entomology, and it is interesting to note that airplanes were used for the transportation of the parasites from the Southern to the Northern Hemisphere.

The possibilities of artificial production of parasites is being investigated by entomologists in several states. This is especially true of a small egg parasite known as *Trichogramma*. Methods have been developed for the artificial production of large numbers, and the possibilities of utilizing this little insect for the control of the sugar cane borer in the South and of the Oriental fruit moth and codling moth in the North are being closely studied by official entomologists of Louisiana, Connecticut, Maryland, New Jersey, New York and Colorado. It takes a thief to catch a thief. It is possible that bugs can be more generally utilized to control our destructive insects.

RESEARCH

Agencies and Scope.—Entomology is a comparatively new aspect of science and most active entomologists are engaged to a greater or less extent in research. The Bureaus of Entomology and of Plant Quarantine of the Department of Agriculture and the closely associated Division of Insects of the United States National Museum have on their staffs an unrivaled group of research men. Work of the same character, though less in volume, is being pursued in entomological departments of state colleges and universities, state museums and city institutions. There are others, such as the Boyce Thompson Institute for Plant Research, Inc., of Yonkers and the Crop Protection Institute, both engaged in advanced research, the latter in the

economic field. There are also departments of various laboratories engaged in medical research or supported by commercial companies, which add greatly to our knowledge of insect life. These studies may be restricted to individual insects, as in the case of the codling moth or the boll weevil, extend over along series of years and engage the efforts of widely separated workers, since the behavior of an insect in one environment may be noticeably different from that in another.

Insecticides.—The studies of insecticides are receiving much attention, particularly in a search for satisfactory substitutes for arsenical poisons. This work has been greatly stimulated by the "tolerance" requirements on fruit shipped abroad. The more general use of oils, both as dormant and summer sprays, has been followed by chemical investigations to ascertain the insecticidal possibilities of these materials. The high cost of nicotine has resulted in extended search by various individuals for satisfactory substitutes, Rotenone, and various other plant poisons leading in these investigations.

TRAPPING INSECTS

Baited traps have been used for years to attract male gypsy moths in sparsely infested areas. Nearly 6,000 were put out the past season. Similar traps have largely replaced scouts in Japanese beetle work. They were put out in 273 selected towns and cities, and their use presumably explains the large number of new infestations discovered. Large scale trapping also was tested by Federal and New Jersey State authorities. The former put out 476 traps and caught over 13,500,000 beetles—some 2,800 pounds—and the latter used 2,100 traps and captured over forty-eight tons of beetles or 700 50-gallon barrels of the insects.

PERSONNEL

Some thirty American entomologists, both professional and amateur, attended the Fifth International Congress on Entomology held at Paris, July 16 to 23.

Professor Clay Lyle was appointed entomologist of the Mississippi State Plant Board and head of the Department of Entomology of the Agricultural and Mechanical College, to fill the vacancy due to the resignation of Prof. R. W. Harned, who is now Principal Entomologist in charge of Cotton Insect Investigations for the Federal Bureau of Entomology.

Dr. C. B. Williams, formerly of the University of Edinburgh, and now in charge of the entomological work of the Rothamsted Experimental Station, England, served as Professor of Entomology at the University of Minnesota for the spring term of 1932.

A prosecuting attorney is rarely aided by insects, and yet the presence of many Japanese beetle grubs in a lawn at Ridgefield, Conn., led to the conviction of a truckman for the violation of the quarantine regulation.

NECROLOGY

Prof. George H. Lamson, head of the Department of Zoology and Entomology of the Connecticut Agricultural College at Storrs, died December 4, 1931.

Andrew Gray Weeks, a widely known amateur entomologist of Boston, died December 7, 1931.

Dr. R. Heber Howe, a teacher widely known because of his studies of dragonflies, died January 28 at Belmont, Mass.

Dr. C. J. S. Bethune, editor for many years of *Canadian Entomologist* and widely known as a pioneer entomologist of the early days, died at Toronto, Canada, April 18 at the advanced age of 94.

George A. Coleman, an entomologist and naturalist of California, died April 28.

Anthony Spuler, well known on account of his economic investigations on fruit insects in Oregon, lost his life by drowning May 30.

Dr. C. W. Johnson, of the Boston Society of Natural History, an outstanding dipterist and naturalist, died June 19.

TEXTS AND MONOGRAPHS

A number of new books on insects

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

and various phases of insect life have appeared during the year. A charming and delightful work of somewhat broad scope and containing numerous insect records is: *My Nature Nook, or Notes on the Natural History of the Vicinity of Dunedin, Florida*, by W. S. Blatchley.

Certain economic phases of entomology are presented in: *Insect Pests of Farm, Garden and Orchard* by E. Dwight Sanderson and L. M. Peairs, third edition, revised and enlarged; and *Insects and Diseases of Ornamental Trees and Shrubs*, by E. P. Felt and W. H. Rankin, a combination of two earlier works, revised and brought up to date.

College and laboratory texts are: *Medical Entomology* by Dr. Robert Matheson; *Medical Entomology, a Revision of the Handbook of Medical Entomology*, by Drs. W. A. Riley and O. A. Johannsen; *Fundamentals of Insect Life* by C. L. Metcalf and W. P. Flint, an abridged and modified edition of an earlier work; *Laboratory*

and Field Manual of Economic Entomology by John R. Eyer, and *A Textbook of Practical Entomology* by Frank Balfour-Browne.

Several more technical works have appeared, namely: *Classification of Insects, A Key to the Known Families of Insects and Other Terrestrial Anthropoids* by C. T. Brues and A. L. Melander, *An Illustrated Synopsis of the Principal Larval Forms of the Order Coleoptera* by Adam G. Boving and F. C. Craighead, and *Diptera, Family Culicidae* by F. W. Edwards in *Genera Insectorum*, Fascicule 194, the last a list worldwide in scope. A volume on *Chemical Embryology* by Joseph Needham, a work of over 2,000 pages and containing an extensive bibliography, deals, among other things, with the chemical changes occurring during the metamorphoses of insects. *Iconographia Insectorum Japonicorum*, with its 2,400 pages and illustrations of more than 4,000 species of insects, is of worldwide interest.

DIVISION XXII

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

AMERICAN ASSN. OF ECONOMIC ENTOMOLOGISTS, Melrose Highlands, Mass.

AMERICAN ASSN. OF MUSEUMS, 2 W. 46th St., New York City.

AMERICAN MUSEUM OF NATURAL HISTORY, 77th St. and Central Park W., New York City.

AMERICAN NATURE ASSN., Lakewood, N. J.

AMERICAN NATURE STUDY SOCIETY, Cornell University, Ithaca, N. Y.

AMERICAN ORNITHOLOGISTS' UNION, 1939 Biltmore St., N. W., Washington, D. C.

AMERICAN PHYTOPATHOLOGICAL SOCIETY, Bureau of Plant Industry, Washington, D. C.

AMERICAN SOCIETY OF NATURALISTS, University of Pennsylvania, Philadelphia, Pa.

AMERICAN SOCIETY OF ZOOLOGISTS, University of Minnesota, Minneapolis, Minn.

BOSTON SOCIETY OF NATURAL HISTORY, Boston, Mass.

BOTANICAL SOCIETY OF AMERICA, Cornell University, Ithaca, N. Y.

ENTOMOLOGICAL SOCIETY OF AMERICA, Columbus, O.

EUGENICS RESEARCH ASSN., Cold Spring Harbor, New York.

FIELD MUSEUM, Chicago, Ill.

MUSEUM OF COMPARATIVE ZOOLOGY, THE, Cambridge, Mass.

NATIONAL ASSN. OF AUDUBON SOCIETIES, 1974 Broadway, New York City.

NEW YORK MICROSCOPICAL SOCIETY, American Museum of Natural History, New York City.

XXII. BIOLOGICAL SCIENCES

NEW YORK ZOOLOGICAL SOCIETY, 101 Park Ave., New York City.	REPTILE STUDY SOCIETY OF AMERICA, INC., 108 Convent Ave., New York City.
PALEONTOLOGICAL SOCIETY OF AMER- ICA, American Museum of Natural History, New York City.	U. S. NATIONAL MUSEUM, Washing- ton, D. C.
PHILADELPHIA ACADEMY OF SCIENCES, Philadelphia, Pa.	ZOOLOGICAL SOCIETY, 101 Park Ave., New York City.

DIVISION XXIII

MEDICAL SCIENCES

PHYSIOLOGY

BY PERCY G. STILES

HARVARD MEDICAL SCHOOL

INTERPRETATION OF MUSCLE CONTRACTION

In making an attempt to appraise recent progress in this science it is not profitable to seek out studies which were definitely begun and concluded in the calendar year. The interest of the general reader must be rather in the cumulative results of longer periods of research. These are discovered in the shifting of conceptions entertained by representative physiologists. An illustration in an important field may be found in the interpretation of muscle contraction.

A generation ago a muscle was assumed to be quite closely comparable with a steam engine. Burning of fuel was believed to precede the establishment of tension or the production of movement. This view has long been abandoned; it was replaced by the teaching that much energy can be released in muscle without any oxidation of its reserves. The energy thus made available has been referred to the transformation of a carbohydrate (or a phosphorus derivative) into lactic acid. The burning of organic compounds has come to be associated with the after-period; by it a supply of energy is afforded which can reverse the previous reaction and reconstruct most of the carbohydrate broken down. Muscle fibers have been likened to storage batteries: normally they are ready to yield power with the utmost promptness but they require to be recharged at intervals.

It now appears necessary to revise the attractive theory of muscle metabolism which has been so long maintained. It has lately been shown that under certain conditions a muscle may do work without sacrifice of its carbohydrate and, consequently, without accumulation of lactic acid. A new type of "explosive" is implied and it has been identified. It is the component of muscle known as phosphocreatin or phosphagen. Its breakdown provides energy for muscle contraction and it is normally resynthesized very promptly. The conversion of carbohydrate complexes to lactic acid, hitherto supposed to make contraction possible, appears to have an indirect relation to the process: it renews the supply of the mobile phosphagen.

If the new conception is correct we cannot employ the analogy of the storage battery in its simple form. We are driven to make a rather grotesque complication, somewhat as follows. The immediate source of the energy of muscle contraction (breakdown of phosphagen) may be likened to the operation of clock-work. The carbohydrate-lactic acid transformation still presents the delivery of energy from the storage battery but it is now conceived to rewind the clock. The oxidation of sugar or equivalent material still serves to recharge the battery. One is led to consider the aphorism of the statesman that "Half-truths are simple, the truth never."

THE NERVOUS SYSTEM AT WORK**Functions of Cells and Fibers.**

The past few years have witnessed a gradual but fundamental change in the accepted picture of the nervous system at work. The cell-bodies of the gray matter and ganglia were formerly given great prominence. They were believed to have an active metabolism and to "discharge" impulses at definite cost to themselves. Now they are relegated to a subordinate status, they are recognized to care for the nutrition of the fibers connected with them but are not credited with originating impulses. Cells and fibers alike are assumed to have the function of conduction. As we have ceased to stress the energy contribution of the nerve-cells, we have, of necessity, made the fibers responsible for the development of the impulses which they convey. Again analogies may be helpful. We used to think of the relation between nerve-cells and their fibers as resembling that between battery units and wires conducting electric currents. An alternative picture came to be recognized in which the nerve-fibers suggested powder trains and now this has practically replaced the older scheme. At a given point in a fuse the intensity of the flare is dependent simply on the conditions existing at that point. It does not indicate the nature of the means used to start the combustion. So when we think of the impulses traversing a nerve-trunk we no longer regard them as energy shot from a distant cell but as generated in each successive region along the course of the fibers. It remains true that the expenditure involved is incredibly small; the nerve is a marvel of economy in action and its resistance to fatigue is correspondingly great.

Carotid Sinus.—Much experimental study has lately been bestowed on the feature known as the carotid sinus. This is an inconspicuous enlargement of the chief artery supplying the head found, on either side, just below the division of this large vessel into its internal and external branches; that is to say, roughly speaking, below the ear. This seg-

ment of the artery has a specialized structure in that it is richly provided with sensory nerve-endings. These are subjected to changing mechanical conditions—and to stimulation—as the distention of the vessel varies with rising and falling blood-pressure. They seem to constitute a safety mechanism. Excessive pressure at this point brings into play corrective reflexes involving both the heart and the vasomotor system with the result that the tension is abated. A fall of the local pressure may also be offset by reflex readjustments. The question has been raised whether chemical changes in the blood as well as changes of pressure may affect special endings in the carotid sinus. It has been claimed that breathing as well as blood pressure may be regulated from this spot. This is to assume that there are receptors exposed to the passing blood which are sensitive to fluctuations in its carbon dioxide and oxygen content, its drift toward alkalinity or acidity, etc. At present, the evidence for such chemical receptors is incomplete; their existence is much less clear than that of the endings which respond to mechanical stimuli.

Control of the Thyroid.—We have important new data on the nervous control of the thyroid. Using rabbits the investigator applied electric stimulation to the cervical sympathetic nerve which sends fibers into the gland from below. The periods of excitation were long, extending to three hours. Measurements of the oxygen consumption of each animal were made before and after the stimulation. For animals at rest this is known to give a fair index of the rise and fall of thyroid activity. When the thyroid delivers its internal secretion in increased amount the cells of the body burn more material. The reaction is slow in its onset and remarkably prolonged. In this series of experiments the effect of nerve stimulation on the rate of metabolism was striking. After a single application an upgrade became noteworthy on the second day and continued to a peak at about two weeks. This maximum was nearly 30

per cent above the original level. It did not entirely disappear short of 40 days from the beginning. The inference is justified that the stimulation established a marked augmentation of thyroid secretion. This gland now takes its place with the adrenal medulla as a mass of secreting cells under definite nervous government. The laboratory observations are in accord with the fact widely recognized that derangements of thyroid function frequently follow periods of nervous strain and over-activity.

PHYSIOLOGY OF SLEEP

There have been some recent contributions of interest to the physiology of sleep. In our own thinking about the subject we naturally stress the loss of consciousness and its return at waking. Yet the subject has objective features and can be studied in the lower animals. Dogs deprived of the cerebral hemispheres continue to give the impression that two states alternately prevail so markedly contrasted as to be referred to as sleeping and waking. The first is featured by the usual posture and a decided elevation of reflex thresholds. The eye-balls have a characteristic position. The "waking"—though probably unconscious—animal roves aimlessly about the room.

When the behavior of normal and decerebrate dogs is compared it appears that the former sleep most of the night and take short naps at intervals during the day. The latter never sleep long at a time and their habits in the matter are unaffected by light and darkness. A recent writer suggests that the cerebral activities postpone sleep in the intact animal; it is not established until the need is profound. In the absence of the highest centers the lower ones are more readily depressed. But since they are "put to sleep" before their fatigue is deep they soon reassert themselves. Loss of the cerebrum thus tends to quicken the rhythmic swing between sleeping and waking.

MAMMALIAN SPLEEN

Several years ago it was shown that the mammalian spleen plays an

important rôle as a reservoir for red blood corpuscles. In the current year this has been proved to hold good for the fowl. When a normal hen is subjected to partial asphyxia there is a decided rise in the hemoglobin concentration of the blood. The increase may amount to 20 per cent. That the spleen is responsible for the change is shown by the fact that it does not occur in birds from which this organ has been removed. In the resting animal the spleen is certainly distended by a reserve which is displaced into the circulation when required. This reserve is not typical blood but contains a higher proportion of corpuscles and correspondingly less plasma. The contraction of the spleen in emergencies may be induced by the direct action of nerves upon it or by the adrenal secretion which is likely to be released at such times.

CARBON MONOXIDE

A study of carbon monoxide has yielded interesting and rather unexpected results. From a practical point of view this is a most poisonous gas. It is surprising to learn that in a certain sense it is harmless. A muscle may be exposed to a high concentration of carbon monoxide, in the presence of a lower percentage of oxygen, under which circumstances the tissue will actually utilize a part of the foreign gas for its respiration. That is to say, there will be some transformation of carbon monoxide to carbon dioxide. Why is the gas deadly as inhaled though useful when brought directly to bear on muscle?

This question is easily answered. When even a low concentration of carbon monoxide is in the lungs it replaces most of the oxygen in the blood. The circulation carries progressively less oxygen and more carbon monoxide through the body. In view of the new work reported in the last paragraph one might expect that the respiration of some tissues (muscle and heart) might be fairly maintained. The difficulty lies in the fact that carbon monoxide does not freely detach itself from the blood. The

compound which it forms with the hemoglobin of the red corpuscles is a stable one. Hence it is less true that carbon monoxide is poisonous than that it is withheld from the cells to which it might conceivably minister.

PHYSIOLOGY OF HEARING

Researches on the mediation of hearing by the auditory nerve are being continued. It may be remembered that previous trials with cats have shown how the waves of physical sound are represented by rhythmic processes in the fibers of this

nerve. It has been found possible to reproduce the original sound from the nerve by a kind of "wire-tapping." The equipment of the animal for hearing has turned out to resemble the telephone more closely than had been supposed. A similar demonstration has now succeeded with an animal of lower grade, the terrapin. Tested for various frequencies the nerve has given evidence of capacity to convey from 120 to 1,000 disturbances per second. This is a range of about three octaves and includes the pitches usual in the human singing voice.

PATHOLOGY

By A. J. MILLER

PROFESSOR, SCHOOL OF MEDICINE, UNIVERSITY OF LOUISVILLE

CARCINOMA IN SITU

Almost every year there is some suggestion for the improvement of diagnosis of carcinomas and other malignant tumors on the basis of morphology. This year's contribution was offered by Broders. He has described various lesions occurring chiefly in the natural orifices of the body and which are characterized by a growth of epithelial cells which remain in their proper position relatively in the tissues, yet have malignant characteristics. These cells are typical in morphology; they still function imperfectly as their parent cells do, yet are believed to be malignant. Such lesions have been described before and in many instances were classified as pre-cancerous lesions or latent cancer or potential cancer, or by some other term which indicated that perhaps they were not endowed with the full properties of malignancy, yet were on their way to the malignant state. He believes that these cells have already reached their malignant state, yet their grade of malignancy is low as is evidenced by the fact that they remain above the basement membrane, which is their normal location, and do not infiltrate the tissues or metastasize. One such definite lesion which is commonly

known and in recent years has been accepted as a low grade carcinoma and yields somewhat to radio-therapy is the skin condition which is a part of Paget's disease of the breast.

In borderline conditions it is probably impossible to state with certainty as to whether or not certain apparent neoplastic conditions are malignant or not, or even whether or not they are neoplastic. For instance, in the eczema-like condition of the skin in Paget's disease of the breast it was the firm belief of Paget that this was not a neoplastic condition, and he made a statement to that effect. Since his time, however, quite a number of men have frankly stated that they believe his opinion to be in error. At the present time these expressions must remain as opinions only.

CELL CHARACTERISTICS

Heretofore, that is until the last five or six years, it was commonly believed that different types of tissue cells in the body had the same or practically the same biological characteristics. For instance that a fibrous connective tissue cell was identically the same as any other fibrous connective tissue cell elsewhere in the body. It is not new, however, that

certain types of skeletal muscle cells are different functionally from other skeletal muscle cells in other portions of the body, but here there is a difference morphologically. Also, we do not expect all nerve cells to function alike, but there is a marked difference in their morphology. Definite differences in biological characteristics which seem to be inherited and are developed during embryonic growth and are apparently permanent characteristics in that they are not influenced materially by environment after acquiring all these characteristics, has recently been shown for connective tissue cells by studies of cultures in vitro. For instance, if connective tissue cells which are identical morphologically, but taken from different parts of the body, are studied in vitro and their biological characteristics enumerated, it will be found that they differ. If then, the various cultures be subjected to the same abnormal environment they will respond differently. After a time, if the environment is returned to normal, it will be found that the cells from different parts of the body have not lost the biological characteristics which they had in the beginning. In other words, during their development they seem to have acquired certain characteristics which cannot be taken away from them by abnormal environment once a certain stage of development has been reached. It follows then, that the connective tissue cells in the heart muscle are perhaps different from those in other places in the body even though morphologically they may be identical. Possibly this is true for other cells of different types. This helps to explain certain peculiar characteristics of cells of the same type in different parts of the body; for instance, the radio-sensitivity of squamous cells is not the same in all parts of the body and even in such a small organ as the tongue it seems true that the radio-sensitivity of the cells on its upper surface varies, that is, the lethal dose of the radium for the squamous cells on the tip of the tongue seems to be different from the lethal dose for the squamous cells in the posterior portion.

EDEMA AND HYPERTENSION

During the year a number of articles have been written in support of the view that edema and hypertension is not directly the result of kidney hypofunction. This is contrary to the view of most clinicians, yet practically every year experimental evidence is brought forth to support the fact that edema and hypertension which are often associated with kidney disease is due to some cause other than kidney deficiency or the lack of kidney tissue. It is possible that the edema is often the result of cardiovascular disease or some toxin which is present in the body in the condition of nephritis and that associated hypertension also must be explained on the basis of cardio-vascular disease or some toxic substance which affects the cardio-vascular system. The association of edema and hypertension with kidney disease, however, cannot be denied. Our notions of the relationship between edema and hypertension and kidney dysfunction, especially hypofunction, most certainly need to be revised.

RADIO-SENSITIVITY

Our knowledge of the relationship of radio-sensitivity to the morphology of neoplasms has been enhanced materially this year even though efforts to describe this relationship have been quite continuously exerted for fifteen or more years. At the present time it seems correct to say that radio-sensitivity is in direct proportion to the degree of malignancy or atypicality of a tumor. That is, that the more malignant a tumor is, the more sensitive it is to radio-therapy. It is also true that neoplasms which are comparatively benign respond less to radio-therapy and that these neoplasms are, because of benignity, more accessible to surgical treatment. Among the chief characteristics which indicate radio-sensitivity, the following may be cited as important: embryonal quality, metaplasia, lack of stroma, infiltration of lymphocytes and marked vascularity. Also there is a marked difference in the radio-sensitivity of different types of tumors, and this difference seems to parallel

the difference that is a quality of normal tissue. For instance, lymphocytes and white blood cells are extremely sensitive. Muscle cells and nerve cells are extremely resistant. Tumors of these tissues have much the same degree of radio-sensitivity, comparatively speaking. Other associations of radio-sensitivity have not been demonstrated. Apparently this quality is a thing that is either developed or lost, as the case might be, in embryological development, and once acquired by the cell the characteristic seems quite permanent.

NATURE OF CANCER

Perhaps a small bit of knowledge has been added to our rather lean supply in regard to the nature of cancer by the study of malignant cells in vitro. The idea has been recently expressed that a cancer cell is a sick cell, that this illness is acquired during the life of the cell. This is in contrast to the idea often expressed that the cancer cell has, in some way, been radically changed in its biological behavior by characteristics which seem to form a permanent part of

the cell once they have been established. This does not necessarily imply that the illness is due to a parasite. It does seem to imply, however, that if it is true that the cell illness, which is possibly manifested by neoplastic growth, is simply an illness and an acquired thing, perhaps, efforts toward the cure of cancer would be more successful if they were directed toward the cure of the illness rather than the destruction of the cancerous tissue. Our knowledge of cancer dates back approximately 3500 years and from that earliest time until now efforts at cure have all been directed toward the destruction of cancer tissue. Methods only have been revised. The newest methods of cancer cure are only new methods of cancer destruction or cancer excision. It seems, then, that this suggestion that the cancer cell is merely a sick one should stimulate endeavor to relieve the illness and in that way allow the cancer cell to develop into a normal adult one rather than continue as the abnormal, atypical one which we speak of as the cancer cell.

MEDICINE

BY NORMAN PLUMMER

INSTRUCTOR, CORNELL MEDICAL COLLEGE

INTRODUCTION

The year 1932 can boast no achievements in medicine comparable to those of 1931 which included the development of a glandular extract for the treatment of Addison's Disease and the production of an enzyme effective against pneumococcus Type 3 infection. In medical investigation, the marked advance has been solely in fields opened up by previous fundamental discoveries.

On first thought, the economic depression might be blamed for the lag in the forward march of medicine but probably it is less casual than coincidental. Certainly the number of physicians in the country has not decreased; on the contrary, it has increased appreciably. Most medical

research is now being conducted in large publicly and privately endowed institutions and so-called medical centres which also are increasing. To be sure, the income of most of these institutions has been greatly reduced, necessitating a reduction in equipment and technicians and preventing an expansion of activities into new fields, but, on the other hand, the number of physicians devoting all or part of their time to investigative work has probably increased.

Perhaps one of the chief advances in recent years is in medical economics, as shown in the development of large medical centres, combining hospitals and medical colleges where care of the sick, teaching, and in-

vestigative work can be carried out in a unified way. Instead of a maternity hospital, a children's hospital, a psychiatric hospital, a hospital for medical and surgical cases, and a medical college functioning in various parts of a city, they are brought together as a unit, thereby forming a coalition of teaching and investigative work. This development is bound to have a great effect on medicine and medical research during the next few years.

During 1932, advances in research medicine have been made along lines started in 1930 and 1931. The vitamins and conditions produced by their deficiencies and excesses have again been given the greatest attention. The endocrin dyscrasias and biochemical and physiological studies of the extracts of the various glands of internal secretion have offered a field for great endeavor and considerable accomplishment. The infectious diseases and their causative agents, particularly the filtrable viruses, have been still further investigated. Bacteriophages have been given a good deal of consideration. The liver extract treatment of pernicious anemia has been greatly improved.

VITAMIN DISEASES

A year ago, the production of crystalline vitamin D was described and the fact was noted that the common yellow pigment, carotene, was extremely potent for vitamin A, and was perhaps a precursor of that vitamin. Early this year, the Scandinavian investigators, Rygh, Rygh, and Laland¹ reported that they had been able to prepare the antiscorbutic vitamin C from the alkaloid narcotine. Later in the year, King and Waugh,² of the University of Pittsburgh, presented proof that pure vitamin C and hexuronic acid were the same substance, that this chemical could be procured in crystalline form from orange juice, and, furthermore, that guinea pigs could be protected from scurvy by the administration of this substance in daily doses of 0.5 of a mg. Our knowledge of the vitamins has also

been increased by certain clinical observations. More and more we are realizing that vitamin deficiencies not only result in frank diseases such as pellagra, scurvy, rickets, beri-beri, etc., but that they cause borderline conditions and symptoms. For example, when there is a deficiency of vitamin B₂ there appears a pre-pellagic condition in which diarrhea or perhaps a sore mouth may be the single symptom. A vitamin B₁ deficiency may be evidenced by a loss of appetite only, and the borderline vitamin A deficiency may be recognized simply by a lowered resistance of infection. These discoveries are adding greatly to the significance of the vitamins, and further complicating the clinical picture of conditions produced by their deficiency. These clinical observations are supported by interesting animal experiments. In May of this year, Thatcher and Sure³ described experiments which show that animals living on diets deficient in vitamin A exhibit metaplastic changes in the posterior part of the tongue and in the respiratory and urinary tract before any definite external signs or symptoms of the deficiency are noted. In some animals bronchitis and other respiratory infections occurred before loss of weight or other symptoms of the known deficiency disease appeared. This supports the belief that A avitaminosis is associated with infections, particularly those of the respiratory tract. McCarrison⁴ has paid particular attention to the occurrence of metaplasia of the urinary tract in experimental animals. In more than one-fifth of those which he placed on a diet deficient in vitamin A, renal calculi developed. Furthermore, he was able to prevent this condition by supplying the accessory food factor. This investigator believes that the keratinized epithelium in the urinary tract forms the nidus around which the calculi form.

A great deal of information has been amassed showing the effect of lack of the various vitamins. Only an occasional report has suggested harmful effects from overdosage of

vitamins. The most convincing evidence has been presented by Grauer⁵ who found that when guinea pigs are given excess amounts of vitamin D bone lesions develop. In the early stages the condition presents only a thickening of the periosteum, but later there is an extensive cystic degeneration of the bone, associated with loss of weight, apathy and muscular weakness. This is strong evidence that excesses of certain vitamins may also be injurious.

ENDOCRIN DISEASES

Banting and Best⁶ discovered insulin in 1922. This was only the beginning of an era of advance in our knowledge of this pancreatic extract and its effect on the body. In 1926, Abel⁷ succeeded in refining insulin to the point of producing it in a crystalline form. This year, Jensen⁸ completed a chemical analysis of the crystalline insulin and found that the characteristic part of the molecule consists partially of crystine combined directly with glutamic acid.

An important therapeutic application of insulin has been described by a number of investigators^{9,10} who found that patients treated with insulin showed a remarkable increase in appetite and subsequent gain in weight. In some cases they noted a gain of as much as 15 to 20 pounds in two to three weeks. The patients not only consumed more food but did so with appetite and relish which without insulin had been entirely lacking. The mechanism by which this condition is produced is probably as follows: the insulin decreases the sugar content of the blood, thereby stimulating the vagus nerve which in turn stimulates gastric secretion and motility. This increase in gastric function produces the psychic phenomenon called hunger.

Further advances in the field of endocrin investigation have been in the nature of clinical observations on patients treated with the new suprarenal extract, called cortin, which was described last year.

INFECTIOUS DISEASES

The relationship between micro-

organisms and disease—perhaps the greatest discovery in medicine for all time—was made about fifty years ago. Since then scarcely a year has passed without the recognition of some new germ, or of the part played by a known organism in some human disease. The possibility of discovering a new disease, or a new bacterium is almost exhausted. Today, investigators are seeking more accurate information as to the exact nature of microscopic and ultra-microscopic beings, and more than that are making these minute particles play tricks.

For many years careful observers have believed that bacteria in nature had the power of changing their form. Certain bacteriologists have thought that in a family of organisms such as the pneumococci one strain may change to another, and that even in distinctly different organisms, for instance, pneumococci and streptococci, bacteria may be transformed from one to another. This phenomenon is called transmutation. Four years ago, Griffith¹¹ described an animal experiment in which one type of pneumococcus could be changed regularly into another. This experiment has been repeated by many investigators and recently Dawson and Sia¹² succeeded in producing the same transformation in the test-tube. This year, Alloway¹³ reported an even more difficult experiment in which in the test-tube he could create a specific pneumococcus from a degenerate organism by adding a certain pneumococcus filtrate and a certain antipneumococcus serum. At this rate of advance, may not the future hold a method of completely synthesizing bacteria?

Recent investigation has revealed how the pseudo-sciences are governed fundamentally by the laws of chemistry and physics. This control is further emphasized by reports of work on the filtrable virus. The etiological agent of tobacco mosaic disease, which bacteriologically fits into the picture of a filtrable virus, chemically seems to be an infectious colloid with an active component of a relatively simple atomic structure.

PHARMACOLOGY

Vinson¹⁴ has been able to obtain a crystalline substance from tobacco mosaic which is uniform in appearance and has certain attributes of an infectious agent. The results of his work suggest that the filtrable viruses have more of a chemical nature than a biological one. If this is so, we must alter considerably our conception of the etiology of poliomyelitis, small-pox, the common cold, and many other filtrable virus diseases.

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PHARMACOLOGY

BY HARRY GOLD

CORNELL UNIVERSITY MEDICAL COLLEGE

POISONING BY CONVULSANTS

The treatment of poisoning by convulsant drugs such as cocaine, picrotoxin and strychnine, has been the subject of active pharmacological investigation the past few years. The older methods of attempting to overcome the convulsant effects of these drugs by depressants such as ether anesthesia or chloral hydrate have not proved very satisfactory. Several of the recent investigations have dealt with the use of the barbiturates, as antidotes to cocaine, following suggestions that came from experiments by Hovendahl (1921). Tatum, Atkinson and Collins (1925) showed that by the use of large doses of sodium barbital intravenously dogs would recover from as much as four times the minimal dose of cocaine fatal to normal animals. These observations have been made the basis of attempts to control symptoms occurring in pa-

tients undergoing operations during local anesthesia with cocaine or novocaine. Guttman (1928) found that the administration of phenobarbital prior to operation almost completely abolished a rather high incidence of disagreeable symptoms which he attributed to the effects of the local anesthetic. Inasmuch as the doses of the barbiturate used were relatively small in comparison with those necessary to combat poisoning by cocaine in lower animals, it is possible many of the symptoms attributed to poisoning may have been due to anxiety, and they were relieved by the barbiturate because of its general sedative and depressant action. It seems very likely, however, that the intravenous injection of the adequate doses of a barbiturate will prove to be a valuable antidote in what might otherwise be fatal poisoning with cocaine. Even more striking antagonisms have been

obtained in the case of strychnine poisoning. Barlow (*J. A. M. A.*, 98:1980, 1932) showed that rabbits recover from more than 20 times the average fatal dose of strychnine when treated with adequate doses of phenobarbital. Interesting observations on antidotes to strychnine poisoning were published by Haggard and Greenberg (*J. A. M. A.*, 98:1133, 1932). When marked hyperexcitability due to strychnine poisoning occurs, one has usually hesitated to give emetics because of the danger of precipitating a convulsion. These authors show, however, that the dog will recover from twice the surely fatal dose of strychnine when treated with injections of apomorphine. They attributed this to the antispasmodic effect of apomorphine. They also presented the records of three patients in whom strychnine convulsions were abolished and recovery occurred as the result of the injection of therapeutic doses of apomorphine which failed to induce vomiting.

OPIUM ALKALOIDS

The Committee on Drug Addiction has continued its activity and under grants from this committee a number of studies on the opium alkaloids have been published during the past year. Pierce and Plant (*J. Pharm. & Exper. Therap.*, 46:201, 1932) studied the excretion of morphine in tolerant and non-tolerant animals and found, among other facts, that there is no essential difference in the rate of excretion in the urine and feces in these two states, thus adding further support to the conclusions of Hatcher and Gold (1928) that there is no evidence that tolerance is due to increased destruction of the drug.

According to the report by C. W. Edmunds (*J. Pharm. & Exper. Therap.*, 45:339, 1932) about 70 compounds of the morphine group had been prepared at the University of Virginia by December, 1931, and studied in part at the University of Michigan. The first two papers of the series were published by Eddy, the one dealing with general methods and the other with a comparison of codeine with three of its isomers.

Pseudomorphine had acquired a place in the problem of morphine addiction because it was believed that some of the phenomena of chronic morphine poisoning were due to the formation of this substance within the body (Marme, 1883). This substance had not been studied extensively. A pharmacological study of pseudomorphine prepared in the laboratory of the University of Virginia, was made by Travell (*J. Pharm. & Exper. Therap.*, 44:123, 1932) and showed that the substance recovered by Marme was probably not pseudomorphine, and that many of the discrepancies in the literature regarding the activity of the drug resulted from the fact that the substance remains practically unabsorbed after oral and subcutaneous injection, but is very active when injected intravenously, many of its effects being similar to those of morphine. She concluded that there is no experimental basis for any role assigned to pseudomorphine in addiction.

HEART AND CIRCULATION

Recent experiments by Greene and Maneval (*J. Pharm. & Exper. Therap.*, 46:303, Nov., 1932) throw light on the long disputed question of whether physostigmine stimulates the parasympathetic endings in the heart or acts directly upon the muscle as well. These were carried out on isolated strips of heart muscle of the turtle, using specimens of the sinus, the auricle, and the ventricle. Their results were very consistent and showed that physostigmine may inhibit the fundamental rhythm of the sinus and this effect is abolished by atropine, and that the same is true of the auricle (in which an automatic rhythm is induced by barium). The rhythm of the ventricular strip was not influenced by physostigmine nor by atropine. Physostigmine also had no effect on the tone contractions of the sinus and auricle. These observations indicate, therefore, that the sinus and auricle are supplied by parasympathetic fibers, but that vagal endings are not supplied either to the ventricular apex nor to the smooth muscle of the sinus and auricle that accounts for the tone

contractions. The absence of any effect of physostigmine on the ventricular strips or on the contractions of the sinus and auricle after atropine is strong evidence in favor of the view that physostigmine does not affect the heart muscle directly but through stimulation of the vagus endings, those portions of the heart not supplied with vagal fibres remaining uninfluenced by the drug. This is contrary to the statement found in a popular textbook which ascribes the effect of physostigmine to an action directly on the heart muscle.

Electrocardiographic studies on the action of quinidine (Gold and Modell, *J. Pharm. & Exper. Therap.*, 46:357, 1932) show the danger of general deductions about the action of quinidine from experiments on anesthetized animals. These experiments were carried out without general anesthesia and show that contrary to the observations on anesthetized dogs, quinidine does not prolong A-V conduction nor does it slow the sinus rate. They also show that it is dangerous to use the duration of quinidine effects upon the heart as an indication of the persistence of quinidine in other structures of the body, because repeated injections of quinidine which showed no cumulation in terms of the effects on the heart resulted in convulsions due to cumulation in the central nervous system. In another series of experiments (Gold and Modell) on the combined actions of digitalis and quinidine, it was shown, among other things, that during intense digitalis action the heart may become very susceptible to the toxic action of quinidine, so that doses which in the normal animal are harmless may cause convulsions due to complete cardiac arrest. Other observations in this study also help to explain toxic symptoms and in some cases sudden death in patients, which have in the past been attributed to quinidine alone, although these patients had received both drugs.

The injection of small doses of epinephrine stimulates the heart, constricts the blood vessels of the splanchnic area, the skin and mucous membranes, but dilates the arteries, arteri-

oles and veins in the skeletal muscles. The rise in the blood pressure is a resultant of these opposing influences. Larger doses also constrict the vessels in the muscles (Hartman, Evans and Walker, *Am. J. Physiol.*, 90:668, 1929). The main emphasis has usually been placed on the pressor effect of epinephrine in regard to its influence on the circulation although Cannon (1915) stressed the importance of a redistribution of blood in different vascular areas and Gruber (1929) pointed out such shifting without any rise in the systemic pressure. More recent experiments by Woods, V. E. Nelson and E. E. Nelson (*J. Pharm. & Exper. Therap.*, 45:403, 1932) bring forth additional evidence on the relative importance of factors other than the pressor effect of epinephrine in its influence on the circulation. In vagotomized dogs during morphine-urethane anesthesia, they found also that the constrictors of the vessels in the kidney, liver and intestine, are paralyzed by approximately similar doses of ergotamine, those in the skin and mucous membranes are somewhat more resistant, and that the cardiac accelerators are not influenced by ergotamine (Otto, 1928). They also showed that after abolition of splanchnic constriction epinephrine may still cause a rise in the systemic blood pressure which must under the circumstances be due to cardiac stimulation and in part to vasoconstriction of the skin and mucous membranes.

A very interesting study of the action of acetyl choline in human subjects was made by Ellis and Weiss (*J. Pharm. & Exper. Therap.*, 44:248, 1932) during the slow intravenous and intra-arterial injection of this drug. They found that it produces a flushing of the skin due to arterial and arteriolar dilatation in limited areas, but that even very large doses neither slow the heart nor lower the systemic blood pressure, and that all of these effects are very brief. They found man very much more resistant to its effects than the anesthetized cat. Their observations in normal subjects did not suggest useful effects in arterial disease.

SYMPATHIN

For some years W. B. Cannon and his associates of the Harvard Medical School have pursued studies on the sympathetic nervous system in relation to the activity of various endocrine glands. To distinguish humeral from direct nervous effects, they devised methods for complete denervation of the heart in which cardiac acceleration when produced by any procedure could not be regarded as due to direct nervous stimulation. In one of their numerous studies (Newton, Zwemer and Cannon, *Am. J. Physiol.*, 96:377, 1931) they observed the puzzling phenomenon of cardiac acceleration after emotional excitement in cats even though the heart was denervated, and all the known cardio-accelerator factors excluded. They investigated this phenomena further (in the cat, Cannon and Baq, *Am. J. Physiol.*, 96:392, 1931, and in the dog, Rosenblueth and Phillips, *Ibid.*, 102:332, 1932) and obtained results from which they concluded that sympathetic stimulation liberates in smooth muscle a hormone which they termed Sympathin, which enters the circulation causing responses in distant organs innervated by sympathetic nerves, these responses being similar in some respects to the effects of adrenin. The essential observations were made in animals with the denervated heart, the adrenals and liver excluded from action, and the spinal cord severed in the mid-thoracic region. Stimulation of the sympathetic strands to the smooth muscles of the tail hairs and of the blood vessels accelerated the heart, raised the blood pressure and increased salivary secretion. When the blood supply from the tail was interrupted the distant effects were delayed until the flow was restored. They found further that ergotoxin which abolishes the pilomotor effect in the tail does not prevent the liberation of this substance, indicating that not the contraction but the excitation process produces the hormone. The facts brought forth in these studies, showing that stimulation of the sympathetics may liberate a substance that will activate distant structures of the body that may be deprived of

their normal sympathetic fibres, are of the utmost importance in the interpretation of physiological reactions dealing with sympathetic innervation. The view that sympathetic as well as vagus stimulation liberates a hormone has received abundant support in earlier experiments on the heart (Loewi, 1921, Brinkman and Van Dam, 1922, Rylant, 1927).

**ATROPINE-PILOCARPINE
ANTAGONISM**

This antagonism has usually been regarded as a depression by the former of the parasympathetic endings stimulated by the latter. Experiments by Koppanyi (*Am. J. Physiol.*, 101:65, 1932) suggest a possible chemical antagonism between the two in the eye. He found that the injection of pilocarpine causes some effects indicating stimulation of sympathetic nerve endings (dilatation of the pupil, widening of palpebral fissure, retraction of the nictitating membrane). This was abolished by atropine. The subsequent injection of epinephrine, however, produced its usual effects upon the pupil and nictitating membrane, which would not have been the case if the antagonism by atropine had been due to depression of the sympathetic nerve endings.

CHOLINE DERIVATIVES

A large number of choline derivatives have been prepared and studied pharmacologically during a period of many years and in several laboratories, especially that of Dale in London and Hunt at Harvard. Apart from the scientific importance of these compounds, their practical usefulness has been limited by the fact that most of them are too rapidly destroyed in the body and exert in addition to the desirable "muscarine" action an undesirable "nicotine" action. The search for more useful members of this group has been continued by Simonart at the University of Pennsylvania (*J. Pharm. & Exper. Therap.*, 46:157, 1932). He investigated a few esters and a larger number of ethers of choline and found that derivatives of B-methyl choline were very potent in muscarine action, practically de-

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void of nicotine action and less readily hydrolized, the most potent being the acetyl ester of *B*-methyl choline. Among other interesting facts disclosed by this study was the fact that the introduction of the methyl group into the choline molecule in the *B*-position markedly diminishes the "nicotine" action, without appreciable change in the "muscarine" potency. This chemical change was also responsible for a marked increase in the miotic action of the choline derivative. Thus he found that the ethyl ether of choline has a very feeble miotic action whereas the ethyl ether of *B*-methyl choline exerts a very intense miotic action. He concluded that acetyl-*B*-methyl choline may prove to be useful in therapeutics because it has the same potency as acetyl choline in lowering the blood pressure, yet has no appreciable nicotine action; it is absorbed from the intestinal tract, and is much more potent than acetyl choline when injected subcutaneously.

GLYCOCOLL

Studies on the origin of creatine

have been pursued largely in patients with progressive muscular dystrophy because they present a creatinuria, whereas creatine does not appear in the urine of normal man and animals. For several years these have been carried on in the laboratory of Karl Thomas in Leipzig. In a recent report by Milhorat, Techner and Thomas (*Proc. Soc. Exp. Biol. & Med.*, 29:609, 1932) it was shown that while patients with progressive muscular dystrophy excrete ingested creatine almost quantitatively, the feeding of various guanidine derivatives does not increase the urinary creatine. They were able to confirm the report by Brand and Harris (1929) that the feeding of glycocoll increases the creatine output and hence is probably a source of creatine. A discovery of considerable importance is the fact that the feeding of large doses of glycocoll results, after initial increase, in gradually diminished creatinuria and is accompanied by marked improvement in the muscular power in cases not too far advanced.

SURGERY

By FRANK L. MELENEY

ASSOCIATE PROFESSOR, COLUMBIA UNIVERSITY

PROGRESS

The progress in surgery during the past year has continued the trend of recent years by increasing the safeguards of operation. Advances have been made in the field of anesthesia; in the surgery of the sympathetic system; in the relief of pain in inoperable carcinoma; and in the comparatively new understanding of parathyroid disorders.

ANESTHESIA

Large series of cases in which spinal anesthesia has been used are now being reported in the literature. Similarly thousands of cases performed under the basal anesthetics avertin, sodium amital and nembutal have been studied. Those who report spinal an-

esthesia recommend it with certain reservations and limitations. One author voices the sentiments of many conservative surgeons when he writes as follows: "Spinal anesthesia should be placed in the class of comparatively dangerous anesthetics so far as its immediate effects are concerned, but if we count the time from that in which the patient goes on the operating table until he leaves the hospital, spinal anesthesia must be considered a comparatively safe anesthetic." This author has emphasized the necessity for the careful and undivided attention of an expert anesthetist. Some surgeons favor spinal anesthesia because they are able to give the anesthetic themselves before the operation and think that they may

depend upon its automatic control of the patient during operation. Most conservative surgeons, however, agree that the patient should be, at all times, under close observation. In a few cases even in expert hands there have been injuries to the cord or nerves, which have left permanent anesthesias or paralyses. There have been cases in which temporary or permanent hemiplegia developed due to a vascular accident in the brain following the extreme changes in blood pressure, due either to the anesthetic or to the remedies used to counteract its effect.

The most serious consequences of spinal anesthesia follow a fall in the blood pressure. The effects of this fall are more dangerous in patients who have an abnormally low or an abnormally high blood pressure before operation. During spinal anesthesia, changes in blood pressure may be so abrupt as to require prompt remedial action. Many of the safe-guards of spinal anesthesia depend upon the frequent recording of the blood pressure from the time the anesthetic is started until a number of hours after it is over, and treatment is directed toward maintaining the pressure at an even level. This is accomplished, in the majority of cases, by giving ephedrine before operation and administering intravenous fluids during or after operation, and by altering the angle of the patient so as to keep the anesthetic away from the centers of the upper cervical cord and medulla, thus helping to maintain the normal circulation of the central nervous system. The advantages claimed for this method of producing anesthesia are very real. The most important of these are the complete relaxation of the abdominal muscles and the contraction of the intestines. These are particularly important in cases of intestinal obstruction. It was hoped that the use of spinal anesthesia would minimize post-operative pulmonary complications but unfortunately they still occur.

Avertin is continuing to receive the approbation of surgeons throughout the country. They are using it with

increasing frequency for all types of operation except for the small group in which it is contra-indicated, namely, liver or kidney diseases and ulcerated lesions of the bowel. All who have used it, emphasize the necessity for precaution in its preparation, but if the proper tests are done immediately before administration, there will be few, if any, untoward effects. Some recent authors favor its use in nervous or apprehensive patients. To these it may be given before operation without the knowledge of the patient who drops off into what appears to be a normal sleep. Some authors advocate the preliminary administration of a sedative, particularly in cases in which marked anxiety is a factor. The older sedatives such as morphine and scopolomine are used by some but there seems to be a definite trend toward the greater use of barbiturates of which sodium amital and nembutal seem to give the most satisfactory results. In fact sodium amital and nembutal are being used by a great many surgeons as basal anesthetics taking the place of avertin. Their effects, however, are not generally as constant nor as prolonged as avertin, one of the chief values of which is the somnifacient effect which may last for several days after operation and carry the patient through the most distressing postoperative period. Everyone who uses these narcotics emphasizes the importance of not attempting to obtain complete anesthesia for major surgery with them. With the preliminary use of these drugs the complete relaxation which is necessary for major cases is obtained by a minimal amount of some inhalation anesthetic. Avertin has also been used to control the seizures of tetany and of epilepsy.

SURGERY OF THE SYMPATHETIC SYSTEM

During the past year there has been increased activity throughout the country in the study of vascular diseases. No further knowledge has been gained concerning the cause of these diseases but the treatment has been more and more rationalized. In

any individual case, the blood supply to an extremity is reduced by two factors, one occlusive and the other spastic. The spastic element seems to be under the complete control of the sympathetic nerves. In former years it was thought that these nerves travel down in the adventitia of the vessels, but more recent observations seem to indicate that they pass down through the regular nerve trunks and branch off all along the course of the vessels. It has been found that injection of the nerves or section of them results in a vasodilatation of the region supplied by the nerve. This may be measured by surface temperature readings and the extent of the rise in temperature, following injection of the nerve, is an index of the degree of spasm in the vessel. This is conveniently tested by the local injection of novocaine into the posterior tibial nerve just above the ankle. The same effect is obtained by spinal anesthesia or by general anesthesia, but according to a number of observers, the injection of the posterior tibial nerve will give all of the information required regarding the spastic factor in any given case. If it is shown that the element of spasm is an important element in the disease the nerves may be injected with alcohol or may be cut in order to give a prolonged vasodilatation. To obtain a more widespread effect, lumbar ramisection or lumbar ganglionectomy is advocated and carried out by many operators. The resulting vasodilatation increases the local blood supply and may furnish the nutrition required for the full function of the part. In cases with severe pain in the feet or hands the actual sectioning of the nerves not only increases the blood supply but completely relieves the pain. Ulcers may then be treated and be made to heal over. This seems to be of value even in those cases in which the spastic element is minimal.

Lumbar sympathectomy has also been advocated by a number of surgeons for the relief of that malfunction of the colon known as Hirschprung's disease. This disorder

is characterized by enormous dilatation of the colon and very distressing constipation. It has been demonstrated that a division of the lumbar sympathetic nerves or removal of the ganglia results in the restoration of the normal function of defecation and in the gradual reduction of the size of the distended colon. This is believed to be due to the removal of the inhibiting action of the sympathetic nerve on the tonic function of its antagonist, the vagus nerve. The success in this field has suggested to certain investigators the idea of overcoming paralytic ileus by splanchnic block. This has met with some success in cases in which the ileus is purely a functional one but it has proved to be disappointing in those cases in which an inflammatory process is the important factor in the production of the ileus.

PAIN IN INOPERABLE CANCER

It has been known for a long time that the sensory nerves may be cut to relieve the distressing pain of certain forms of cancer particularly that which attacks the pelvic organs. Within the last few years more accurate knowledge of the sensory tracts in the cord has permitted the localization of the nerves carrying the sensation of pain in any given case. These nerves pass upward on the antero-lateral aspect of the cord and by a relatively simple and safe operation in the hands of an expert neurosurgeon these pain tracts may be cut in the cord so as to relieve this distressing symptom. A very distinct advance in cordotomy has followed the discovery that section of the pain fibers in the cord causes the patient no distress. Manipulation of the posterior roots is painful but curiously enough cutting into the antero-lateral tracts is not. This operation may therefore, be carried out under local anesthesia. This permits the patient to cooperate with the surgeon by announcing during the operation just when the affected fibers have been cut across. This operation offers the patient the solace of living in comfort until the disease itself has run its course.

FRACTURES

There has been a recent stimulus to the study of the cause and treatment of fractures. The rapid growth of industrial medicine and the improvement of labor conditions in industry as evidenced by the recent workmen's compensation laws and the extensive spread of group insurance have contributed to this interest. The responsibility for accidents which has been placed upon employers has resulted in more safe-guards against injury and more intensive study in an effort not only to improve the end result of fracture treatment, but to shorten the period of disability. A greater emphasis is now being placed upon the return of function rather than upon the anatomical end result. Disability is largely attributable to soft part injury. It has been found that the repair of a fracture is dependent upon adequate granulation tissue growth about the site of fracture. The calcium which is laid down in this granulation tissue comes from the neighboring bone rather than from the blood-stream calcium. All efforts made to increase the general calcium content of the body by intravenous or by alimentary administration has been unsuccessful but local administration of calcium at the site of fracture in the presence of sufficient granulation tissue to serve as a scaffold upon which the calcium may be deposited, results in rapid solidification. It has long been shown that mal-union or delayed union of bones is more a question of the site of fracture than it is a question of the metabolic function of the patient.

It is now generally accepted that a fracture should be treated as soon as possible after its occurrence, the immediate purpose of treatment being to prevent further damage to the soft parts and to restore as soon as possible the apposition of the fractured bone ends. The part should be maintained in this quiet and steady position until adequate connective tissue repair has taken place. This is best accomplished by some form of internal fixation by an operative procedure or by a balanced traction-

suspension apparatus applied from without. Both of these forms of treatment must permit a certain degree of active function in the neighboring muscles and joints. Recent physiotherapy has been shown to play an important part in the early stages of fracture healing. The swelling of the soft parts due either to hemorrhage or exudation may be reduced by proper methods. In the later stages, physiotherapy likewise helps to restore function, but it is important for the patient to understand that the normal function of the part can be most readily restored by the frequent purposeful active motion of the muscles, tendons and joints,—religiously carried out by the patient himself. In some cases the question of monetary compensation for injury has undoubtedly delayed the restoration of function for, in order to obtain the maximum judgment from the courts, patients have been known to unconsciously as well as consciously delay the return of function by refusing to do their full share in the efforts which are being made to restore functions.

PARATHYROID SURGERY

Within recent years a clinical syndrome has been recognized which is due to the hyperactivity of the parathyroids. The lesion takes the form either of a diffuse hyperplasia or an adenoma of one or more of the parathyroid glands. The parathyroids play a part in the calcium metabolism of the body. If they are over active the blood calcium and plasma phosphate increase while the plasma phosphate decreases. Large quantities of calcium escape from the body in the urine, and in many cases renal calculi are formed. The bones are called upon to supply this calcium and marked osteoporosis may develop throughout the body. The bones become soft and fail to maintain their normal contour. The height of the body may be decreased. Undue strain is brought on ligaments and muscles and pain may be severe. Multiple cysts form in many of the bones and pathological fractures are frequent. The disease is twice as common in women as in men and is most likely

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to develop between the ages of 30 to 55 years. In only a small percentage of the cases is it possible to palpate the parathyroid tumor because of the deep situation of those glands, but the clinical manifestations of the disease are so striking and the laboratory evidence so definite that even though the tumor cannot be found on examination, an exploration for it may be justified. If it is not found in the normal location of the parathyroids it should be searched for in the mediastinum. The removal of these tumors is generally followed by an immediate relief of the symptom of pain and a progressive improve-

ment as the loss of calcium ceases and the bones become recalcified. In a number of cases, removal of the tumor has been followed by tetany but this has been easily controlled by the administration of calcium and parathormone. The condition must be differentiated from focal osteitis fibrosa cystica which usually affects only one bone and generally is not disabling. The process occurs usually in adolescence and is often symptomless unless spontaneous fracture occurs. In the latter condition the serum calcium and plasma phosphorus are normal and exploration of the neck is obviously unjustifiable.

DENTISTRY

BY HOUGHTON HOLLIDAY

ASSISTANT PROFESSOR, COLUMBIA UNIVERSITY

RESEARCH

With a few outstanding exceptions, research in dentistry has been, for many years, one-sided. It has consisted for the most part in the development of profitable, patentable inventions, often under commercial auspices. Such investigations have been very much worthwhile but have contributed little toward the prevention of dental diseases and abnormalities. They have been primarily mechanical and only incidentally biological. However, a change is taking place, and every year brings forth an increasing amount of valuable research in dentistry. Several factors are responsible for this change. With the increasing appreciation of the importance of dental problems, financial support has been forthcoming. A more universal control of dental education by the universities has raised the standard for dental teachers. There are more full-time teachers whose chief interest is in education, not in the building of a practice. These teachers are not only interested in research but are better able to conduct and guide original investigation. The broader preliminary education of the students ren-

ders them more responsive to the appeal of research. Biologists have become interested in dental problems and are contributing much valuable help. Also the medical faculties which have cooperated with dental faculties more or less unwillingly are beginning to set aside their prejudices and are entering into dental research.

MOTTLED ENAMEL

Initial Studies.—A mere enumeration of the many problems upon which research has been in progress this past year would probably be of less interest than a brief resumé of one or two of the outstanding investigations. One of these which has been under way for about twenty years comes to its culmination in 1932. Reference is made to the research on the nature, geographical distribution, and cause of mottled enamel. The abnormality of the teeth known as mottled enamel was first reported by Eager of the U. S. Public Health Service in 1901. Eager was stationed at that time in Naples where he observed the condition among the Italian emigrants. The condition received little attention, however, until

1916 when McKay and Black jointly published a series of articles dealing with their study of this defect in Colorado. Further investigation by McKay and others revealed that this enamel defect was found over a large part of the United States and in widely scattered areas in other parts of the world. The condition is characterized by dull, unglazed, chalky areas distributed irregularly over the enamel, resulting from a lack of the cementing substance between the enamel rods. Sometimes the enamel is badly pitted and structurally weak.

Drinking Water Factor.—Investigations have been directed toward finding the peculiarity of the environment common to the various localities where the defect was endemic. McKay's deductions from a study of the circumstantial evidence indicated that there was some unknown factor associated with the drinking water. This conclusion was supported by other investigators who subsequently entered the field. An intensive study of the town of Bauxite, Ark., under the Department of Public Health of the United States Government with the cooperation of the mining company in Bauxite, indicated definitely that the abnormality which affected 100% of the native population was associated with the use of deep-well water. All cases of the enamel defect were found to have appeared following the introduction of deep-well water, and all who had used this water for any length of time during the period of enamel formation exhibited the characteristic defects. The enamel of individuals who came into the area after the period of enamel formation was not affected. Following these disclosures Bauxite abandoned its water supply and substituted water from an entirely different source. A reëxamination of this community is contemplated within a few years to note the effect of this change in water supply.

Study of Fluorine Factor.—Although all evidence pointed to the water supply as the cause of mottled enamel, no specific common characteristics of these waters had been discovered which would account for the

destruction of the permanent teeth and the deforming of the mouths of all those born and raised in these areas. Recently A. W. Petrey in the Aluminum Research Laboratories discovered spectrographically the presence of fluorides in the deep-well water supply at Bauxite. Reëxamination of the water supply of all the endemic areas revealed fluorine. The severity of the enamel defect was found to be in proportion to the amount of fluorine present in the water. An examination of the water from 26 scattered localities in the United States revealed either no fluorides, or fluorides present in less than one part per million.

Dietary Factor Discarded.—At the behest of Dr. Bard of Tucson, Arizona, the Agricultural Experiment Station of the University of Arizona took up the study. In their efforts to find the causative factor several theories of other workers were tested. The records of the ages at which the common diseases of childhood occurred disproved the assumption that they were a factor in the enamel deficiency. Since many dental defects are caused by dietary deficiencies, some believed that faulty nutrition was the sole cause of mottled enamel. Investigation into the diet of the people in these areas indicated that it was in no particular different from people in similar circumstances living in communities where the condition was not present. However, it was found that rats given water from the endemic areas, concentrated by evaporation, speedily developed the typical mottling of the teeth. Although definite proof has now been advanced to prove that this enamel defect is caused by the action of the fluorine from the water supply of the afflicted communities, the results of changing this water supply will be watched with interest as the teeth now developing under this changed environment come into view.

TOOTH DECAY

Conflicting Views.—The major problem before the dental profession today is that of tooth decay, or dental caries. At no time in history has

there been so much interest in this subject or so much scientific research directed toward it. The problem has been attacked from a variety of angles and, as is to be expected in a problem so complex, many divergent and conflicting views have been expressed. The investigators might be divided, for convenience, into two groups,—those who place the major emphasis on local environment, and those who hold that the cause for dental caries is to be found in deficiencies of one or more dietary factors.

Environment and Nutrition.—Miller is considered the pioneer in the local environment school, for in 1890 he demonstrated that mouth organisms produce lactic acid by fermenting carbohydrate food debris, and that this lactic acid decalcifies tooth enamel. He also pointed out that this destruction of the enamel occurs at the pits fissures, and proximal surfaces, where food retention is most common. Miller did not explain why mouths in a filthy condition are often free from decay nor why the carious process is sometimes arrested. With the aid of modern bacteriology, subsequent investigators have succeeded in giving us much more detailed information about the process of tooth decay. Prominent in this study are the names of Black, Gies, McIntosh, Rodriguez, Bunting, and Enright and Friesell. In general, these investigators are agreed that local environmental conditions are the main factors in producing decay and that nutrition is of importance in that it is responsible for the development of the tooth and hence for its ability to resist the acids of fermentation. They further concede that the bacterial flora of the mouth may be altered by variations in the diet. Some members of this school have succeeded in producing caries experimentally. They account for the halt in decay, which is sometimes observed, by the presence of inert organic coatings in the cavity. Further, they say that the mouth may be filthy and yet not contain the specific organisms necessary to produce decay.

Questions of Diet.—There has sprung up, however, another group of investigators which holds that diet is the factor of primary importance. In this group we have Mellanby, Howe, Hanke, Grieves and McCollum, Boyd and Drain, and McBeath. This school feels that the environmental bacterial factors are purely incidental and are secondary to the resistance of the tooth. They base their conclusion on the results of extensive studies on the diets of rats, dogs, and growing children. Mrs. Mellanby is inclined to favor vitamin D, while Hanke lays great stress on the importance of vitamin C. He recommends diets which include large amounts of citrous fruits and fresh vegetables.

Boyd and Drain observed an apparent arrest of caries among a number of children reporting to a dental clinic for observation. On investigation it was found that all of these children were diabetics and had been on a diet of milk, butter, eggs, meat, cod liver oil, vegetables, and fruit. Application of this diet to other children produced the same favorable results. Boyd and Drain attributed the checking of the caries to the substitution of an adequate diet for a faulty one. No one factor was responsible but rather a proper balance of all the factors.

McBeath is carrying on an extensive and a very promising study on the value of protective diets. In three orphanages organized on the home plan he has had experimental and control groups under observation for nearly a year. The usual diet of the institutions is used for the control groups and this is supplemented for the experimental groups to correspond closely to the diet advocated by Boyd and Drain. As a result of his observations to date, McBeath feels that the results confirm the theory of the importance of diet in the control of caries, but feels that no one dietary factor is of outstanding importance.

In spite of the growing interest in this all important problem, and in spite of the extent to which the investigations have gone, the study probably is still in its infancy.

XXIII. MEDICAL SCIENCES
PUBLIC HEALTH AND HYGIENE

BY IRA V. HISCOCK
PROFESSOR, YALE SCHOOL OF MEDICINE

HEALTH AND THE DEPRESSION

Measured in terms of reports of sickness and deaths, the health of the people of the United States and Canada, in general, has been favorable up to the last quarter of 1932. This situation is of special interest in view of the fact that this is the third year of serious economic depression, with possibly 10,000,000 unemployed. These records, however, do not reveal the state of mental health, a problem of immense importance. Furthermore, should the economic conditions continue, there is much concern regarding the consequences of malnutrition of children in terms of disease and mortality records.

Favorable meteorological conditions, absence of serious epidemics of disease, and changes in the mode of life which have been forced on many people during the depression have been cited as factors underlying the maintenance of good health conditions. It is asserted that there has undoubtedly been less over-feeding, and less exposure to hazards of industry, with more rest, leisure, exposure to sunshine, and opportunities for outdoor exercise. But the most important factor is believed to be the continued and effective functioning of the health departments, the medical profession, and the social service agencies.

However, during the year, increased pressure of economic circumstances caused many health budgets to suffer. Studies by the American Public Health Association have revealed average reductions in 228 departments of 11 per cent, the amounts varying widely in different states, counties, and cities. This tendency to cut public health expenditures, which are still considered minimal on the average, is viewed with grave concern by those who are interested or engaged in public health work and are aware of its significance to the nation's welfare. (Dublin, Louis I., "The Health of the People in a Year of Depression,"

Amer. Jour. Pub. Health, Vol. XXII, No. 11, Nov. 1932, p. 1123.)

DIPHTHERIA

The effectiveness of procedures for the reduction of diphtheria has been subjected to critical analysis under the auspices of a committee of the American Public Health Association. It can be taken as reasonably well proved that a considerable majority of persons given three injections of either toxoid or toxin-antitoxin thereby become immune to the disease. From studies thus far made, it is noted that the injection of 50 to 70 per cent of children over 5 years of age with 3 doses of toxin-antitoxin has failed in numerous instances to produce any marked effect on the diphtheria incidence of a community. On the other hand, the immunization of 30 per cent or more of children of the under-5 age group in addition to more than 50 per cent of children 5 to 9 has in several instances produced an immediate and striking decline in the diphtheria rate of the community as a whole. It is emphasized that local conditions may vary, and that the only reasonably sure protection for the individual is individual immunization.

Studies of the advantages of toxoid over toxin-antitoxin mixture indicate that the toxoid is from 20 to 30 per cent more effective, even when only 2 doses are given. It contains no serum or other animal protein likely to sensitize to a later therapeutic serum injection. It is without local or general reaction in practically all children under 7 years of age. It is more stable, retaining its effectiveness for a longer period, and is not affected by freezing.

PSITTACOSIS

From epidemiological and laboratory studies it seems apparent that psittacosis, a disease of birds which has appeared several times in the

United States since 1929 with fatal results in humans, is highly communicable to man. The specific cause is a filtrable virus; the chief contributing cause is contact with infected birds or human cases of the disease, or their environment, either as a result of occupation, family association, or casual circumstances. The essence of the prevention of psittacosis, according to Hasseltine, lies in avoiding contact with birds of the parrot family. Recently acquired or young birds are more dangerous than birds that have been in the family for some time, provided such birds have not been in contact with infected birds.

TUBERCULOSIS CONTROL

X-ray Examinations.—Evidence is accumulating to show the value of x-ray examinations of high school pupils and of college students for the early detection of tuberculosis. Pulmonary tuberculosis of manifest degree in young adults is reported to be surprisingly often demonstrable by routine roentgenograms. History-taking and ordinary physical examination often fail to disclose manifest tuberculous processes. Infection and degree of pathological involvement are found to increase with age. Routine roentgenograms of the lungs of college and university students reveal so much tuberculous involvement, unsuspected by other methods of examination, that certain tuberculosis workers, at least, feel that roentgenograms or some equally effective method of lung examination should be generally employed.

Queens County Demonstration.—The Queensboro Tuberculosis and Health Association in cooperation with the New York City Departments of Health and of Education, the Medical Society of the County of Queens and the Metropolitan Life Insurance Company is conducting a tuberculosis demonstration to be carried on for a period of four years. The object is to determine whether the tuberculous lesions in the chests of children readily detectable by means of x-ray constitute the group of cases in which clinical tuberculosis later develops.

X-ray Program.—During 1931-32, the chests of 11,514 children of 7, 10

and 14 years of age were x-rayed and it is planned to x-ray the same children each of the following three years. This extensive program was facilitated by means of a specially devised x-ray apparatus which permits the rapid taking of x-rays and uses paper instead of celluloid films. Several hundred children may be x-rayed daily. The paper film is likewise being utilized for the x-ray, in a manner similar to the above, of 6,000 children of the Junior and Senior high and private schools in New Haven, as a result of a program developed by the local Boards of Health and of Education. The cost of each film on this basis is only 60 cents and the expense is borne by the family. Cases showing suspicious signs or active tuberculosis are referred directly with the film and a note of interpretation by the city director of tuberculosis to the family physician for follow-up and necessary care.

MILK

Raw vs. Heated Milk.—Recent studies have been conducted by the United States Public Health Service in an effort to answer the question: "Do children who drink raw milk thrive better than the children who drink heated milk?" It is concluded that the growth-promoting capacity of heated milk plus the supplementary diet received by the average American child of 10 months to 6 years is not measurably less than the growth-promoting capacity of raw milk plus the supplementary diet received by the average American child of 10 months to 6 years. These observations are in line with an editorial in the *Journal of the American Medical Association* of April 9, 1932.

Irradiation.—A review of significant comments from current literature shows that practically all recorded experiences from the use of irradiated milk are free from adverse observations or criticisms of hypothetical character. The favorable clinical records as well as the advances which have been made in the art of milk irradiation would seem to indicate that milk thus fortified in its vitamin D content may become

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an effective and economical agency for eliminating rickets as a nutritional disorder of childhood. (Report of the Committee on Food Value of Milk and Milk Products, International Association of Dairy and Milk Inspectors, 1932).

COSTS OF MEDICAL CARE

Studies.—The Committee on the Costs of Medical Care, of which Dr. Ray Lyman Wilbur is chairman, has completed studies of the extent and cost of illness of 9,000 families, based on special intensive surveys in Philadelphia, in the State of Vermont, in San Joaquin County, Calif., in Shelby County, Ind., and in three southern counties. Studies have also been completed of industrial, university, and army medical service of an organized type, together with a study of the standards of reasonable adequacy of medical care.

Group Practice and Purchase.—The final report of the committee comes out unqualifiedly for group practice and group purchase. Representing as

the ideal of group practice, the development of medical centers built around voluntary hospitals is suggested, with boards of lay trustees and complete control of professional matters in the hands of a medical staff. By this program there would be rendered complete institutional, clinic and home service, including health examinations, on an annual per capita payment basis, the practice and group purchase leading toward the ultimate goal.

Compulsory Insurance.—Certain members of the committee urge immediate steps toward compulsory insurance where local conditions are favorable. A minority report is presented by members of the committee who dissent from the general conclusions and urge that the medical profession, through county medical societies, shall take the lead in the development of its own machinery for the solution of the problem. (Reports of the Committee on the Costs of Medical Care, 910 Seventeenth Street, Washington, D. C.)

VITAL STATISTICS

VITAL STATISTICS

By T. F. MURPHY

CHIEF STATISTICIAN FOR VITAL STATISTICS, U. S. BUREAU OF THE CENSUS

FEDERAL STATISTICS

Scope of Compilation.—In 1931 the Federal Government compiled mortality statistics for 47 states, the District of Columbia, and 8 registration cities in the only non-registration State, Texas, and natality statistics for the same states, except South Dakota. In that year the death registration area included 96.3 per cent of the total population and the birth area 94.7 per cent of Continental United States. These areas also include the insular possessions of Hawaii and the Virgin Islands for which, however, statistics are not shown in the following table of birth, death, infantile mortality (deaths of infants under 1 year of age per 1,000 live births, and stillbirths. The State of Utah is excluded because transcripts of certificates for the entire year have not been furnished by the State.

Death and Birth Rates.—The table shows a markedly lower death rate in 1931 (11.1 per 1,000 population), from that of 1900 (17.6 per 1,000 population)—the first year of registration—and also a lower birth rate (18.0) from that of 1915 (25.1) when the

birth registration area was established.

Mortality Rates and Disease Control.—In 1930 the diseases which caused the greatest mortality were diseases of the heart (205.5 deaths per 100,000 population), influenza and pneumonia (all forms, 102.7), cancer and other malignant tumors (97.2), and nephritis (90.8). In 1900 the corresponding rates were 132.1, 203.4, 63.0, and 89.0. With improved diagnosis and standardized classification of diseases great differences are shown in the mortality rates of 1930 from those of 1900. Typhoid fever, with sanitary improvements in water and milk supply, has been reduced from 35.9 in 1900 to 4.8, or almost obliterated; likewise diphtheria, with the use of antitoxin, has declined from 43.3 in 1900 to 4.9, tuberculosis of the respiratory system is almost three times lower (63.4) than the rate of 1900 (180.5), and the mortality from diarrhea and enteritis has been lowered almost five times below the rate of 1900 (from 133.2 to 26.3 per 100,000 population). Thus the progress in sanitary engineering and medical science is not only apparent but conspicuous.

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MORTALITY AND NATALITY BY STATES

Area	Death registration area in continental United States		Birth registration area in Continental United States 1931					
	Deaths		Live Births		Deaths under 1 yr.		Stillbirths	
	Number	Rate per 1000 Estimated Population	Number	Rate per 1000 Estimated Population	Number	Rate per 1000 live births	Number	Rate per 1000 live births
Registration area ¹	1,318,110	11.1	2,100,565	18.0	129,516	61.7	80,333	3.8
Urban.....	703,690	11.9	1,007,286	17.5	61,481	61.0	39,939	4.0
Rural.....	614,420	10.2	1,093,279	18.4	68,035	62.2	40,394	3.7
Alabama.....	28,431	10.7	62,743	23.5	3,855	61.4	3,065	4.9
Arizona.....	6,074	13.7	9,369	21.1	1,027	109.6	291	3.1
Arkansas.....	17,847	9.6	41,042	22.0	2,013	49.0	1,596	3.9
California.....	67,410	11.5	81,426	13.9	4,613	56.7	2,330	2.9
Colorado.....	12,470	12.0	18,513	17.7	1,500	81.0	571	3.1
Connecticut.....	17,246	10.6	25,555	15.7	1,375	53.8	692	2.7
Delaware.....	3,301	13.8	4,237	17.7	346	81.7	174	4.1
D. C.....	7,743	15.8	9,353	19.0	627	67.0	430	4.6
Florida.....	18,102	12.0	27,033	18.0	1,728	63.9	1,523	5.6
Georgia.....	32,992	11.3	61,780	21.2	4,217	68.3	3,679	6.0
Idaho.....	4,000	9.0	9,075	20.3	507	55.9	180	2.0
Illinois.....	85,788	11.1	118,788	15.4	6,961	58.6	4,080	3.4
Indiana.....	38,699	11.9	55,973	17.2	3,224	57.6	1,628	2.9
Iowa.....	25,681	10.4	41,943	16.9	2,055	49.0	1,333	3.2
Kansas.....	18,618	9.9	32,794	17.4	1,571	57.9	952	2.9
Kentucky.....	28,905	11.0	57,120	21.7	3,713	65.0	2,027	3.5
Louisiana.....	23,535	11.1	43,369	20.4	2,856	65.9	2,148	5.0
Maine.....	10,490	13.1	16,303	20.4	1,166	71.5	597	3.7
Maryland.....	21,763	13.2	28,782	17.5	2,318	80.5	1,912	6.6
Massachusetts.....	48,577	11.3	69,044	16.1	3,774	54.7	2,402	3.5
Michigan.....	49,104	10.0	90,929	18.4	5,184	57.0	3,232	3.6
Minnesota.....	25,450	9.9	46,882	18.2	2,370	50.6	1,400	3.0
Mississippi.....	22,009	10.9	45,211	22.3	2,529	55.9	2,061	4.6
Missouri.....	44,120	12.1	60,734	16.7	3,814	62.8	2,547	4.2
Montana.....	5,280	9.8	9,638	17.9	583	60.5	309	3.2
Nebraska.....	12,908	9.3	26,609	19.2	1,299	48.8	766	2.9
Nevada.....	1,346	14.6	1,223	13.3	91	74.4	41	3.4
New Hampshire.....	5,923	12.7	7,764	16.6	445	57.3	312	4.0
New Jersey.....	44,475	10.8	64,054	15.6	3,640	56.8	2,519	3.9
New Mexico.....	6,156	14.4	12,322	28.8	1,656	134.4	344	2.8
New York.....	149,107	11.7	205,677	16.1	11,808	57.4	8,529	4.1
North Carolina.....	33,116	10.3	74,799	23.3	5,455	72.9	3,385	4.5
North Dakota.....	5,128	7.5	14,380	21.1	845	58.8	405	2.8
Ohio.....	75,557	11.3	108,150	16.1	6,494	60.0	3,755	3.5
Oklahoma.....	18,802	7.8	43,269	17.9	2,228	51.5	1,057	2.4
Oregon.....	10,242	10.6	13,210	13.7	577	43.7	359	2.7
Pennsylvania.....	111,936	11.5	178,714	18.4	11,918	66.7	6,421	3.6
Rhode Island.....	7,973	11.5	11,325	16.3	689	60.8	366	3.2
South Carolina.....	21,087	12.1	39,515	22.7	3,201	81.0	2,448	6.2
South Dakota.....	5,868	8.4	2	2	2	2	2	2
Tennessee.....	28,618	10.8	52,234	19.8	3,530	67.6	2,198	4.2
Vermont.....	4,493	12.5	6,676	18.5	400	59.9	186	2.8
Virginia.....	30,029	12.4	52,731	21.7	4,026	76.3	2,308	4.4
Washington.....	16,524	10.5	22,028	14.0	1,064	48.3	591	2.7
West Virginia.....	17,620	10.1	39,325	22.5	3,036	77.2	1,526	3.9
Wisconsin.....	30,217	10.2	54,420	18.4	2,887	53.1	1,541	2.8
Wyoming.....	2,035	8.9	4,504	19.8	301	66.8	117	2.6
Registration cities in non-registration state.....	15,315	12.1	2	2	2	2	2	2

¹ Exclusive of Utah.

² Not in the registration area for births.

VITAL STATISTICS

Death rate per 100,000 estimated population in the registration area in Continental United States

1900	1910	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930
1,755.0	1,496.2	1,303.8	1,158.2	1,173.9	1,219.7	1,173.0	1,184.1	1,225.4	1,143.4	1,206.6	1,191.9	1,133.1
All causes (exclusive of stillbirths)...	23.5	7.8	9.0	7.4	6.8	6.7	8.0	6.5	5.5	4.9	4.2	4.8
Typhoid and paratyphoid fever.....	35.9	9.2	7.8	9.0	7.4	6.7	8.0	6.5	5.5	4.9	4.2	4.8
Smallpox.....	1.9	0.4	0.6	0.7	0.7	0.1	0.9	0.7	0.4	0.1	0.1	0.1
Measles.....	12.5	12.3	8.8	4.3	4.3	10.7	8.5	8.2	4.1	5.4	2.5	3.2
Scarlet fever.....	10.2	11.6	2.8	4.6	5.3	3.5	2.7	2.5	2.3	2.0	2.0	1.9
Whooping cough.....	12.1	11.4	5.5	9.1	5.6	9.7	8.2	8.9	6.9	5.5	6.3	4.8
Diphtheria.....	43.3	21.4	14.7	13.3	17.6	12.0	9.3	7.8	7.5	7.8	6.6	4.9
Influenza and pneumonia (all forms)	203.4	162.1	222.3	208.0	132.6	152.4	116.7	123.4	103.2	143.5	147.2	102.7
Influenza.....	22.9	14.4	98.8	70.9	31.2	44.3	19.4	29.7	22.6	45.3	55.5	19.5
Broncho-pneumonia.....	21.9	47.1	47.8	39.1	44.9	43.7	40.6	38.7	33.8	39.6	37.6	34.3
Lobar pneumonia.....	158.6	46.4	66.2	73.0	50.1	53.7	50.6	44.0	43.2	53.4	49.5	45.4
Unspecified pneumonia.....	54.3	9.5	9.5	6.2	6.4	7.1	6.1	4.7	3.7	5.1	4.6	3.5
Erysipelas.....	5.1	4.5	2.6	3.1	2.8	2.5	2.4	2.6	2.4	2.4	2.5	2.1
Epidemic cerebrospinal meningitis...	0.4	1.8	1.6	1.5	1.0	1.0	1.1	1.3	1.6	2.6	4.5	3.6
Tuberculosis of the respiratory system	180.5	136.0	107.5	85.6	84.3	81.3	78.0	75.9	76.6	71.4	67.6	63.4
Other forms of tuberculosis.....	21.4	24.3	18.1	13.3	12.1	11.5	11.7	10.8	10.7	9.5	9.0	8.1
Malaria.....	7.9	2.2	3.8	3.6	3.6	2.8	2.4	2.1	1.9	2.7	3.6	3.5
Cancer and other malignant tumors	63.0	76.2	80.5	83.2	86.2	88.7	91.1	92.8	95.1	95.7	95.9	97.2
Diabetes mellitus.....	9.7	14.9	14.9	16.0	18.3	17.7	16.4	16.9	18.0	17.5	19.0	19.0
Cerebral hemorrhage and softening	71.5	75.7	78.6	81.7	82.9	86.9	88.9	81.0	82.8	80.4	82.1	81.0
Diseases of the heart ¹	132.1	158.8	146.7	159.1	166.3	173.8	176.5	185.7	199.5	208.2	210.8	205.5
Bronchitis.....	45.7	23.4	12.8	13.2	9.0	9.3	7.2	6.5	6.6	5.4	5.2	4.2
Diarrhea and enteritis ²	133.2	117.4	55.2	64.3	51.4	39.3	34.5	39.4	33.6	26.9	23.5	26.3
Appendicitis.....	9.7	11.4	11.8	13.4	14.1	14.7	14.8	15.2	15.0	15.3	15.2	15.3
Hernia, intestinal obstructions ³	12.2	12.4	10.4	10.6	10.7	10.5	10.3	11.2	10.5	10.5	10.6	10.3
Cirrhosis of the liver.....	12.9	13.9	7.9	7.4	7.4	7.2	7.3	7.3	7.2	7.5	7.6	7.2
Nephritis.....	89.0	99.1	88.1	89.2	85.0	87.9	88.8	96.5	98.5	92.6	91.2	90.8
Puerperal septicemia.....	5.7	7.2	5.8	6.8	5.7	5.8	5.7	5.5	5.3	5.0	5.0	4.6
Other puerperal causes.....	7.6	8.5	11.2	12.5	10.1	9.9	9.7	9.3	9.1	8.5	8.2	8.2
Congenital malformations and diseases of early infancy.....	91.8	88.1	79.9	83.9	77.7	77.3	77.6	74.0	67.8	65.8	62.4	60.9
Suicide.....	11.5	16.0	11.4	10.2	12.5	11.8	11.5	12.1	12.8	13.3	14.0	13.6
Homicide.....	2.1	5.9	7.5	7.1	8.5	8.1	8.4	8.6	8.8	8.8	8.5	9.0
Automobile accidents ⁴	1.8	9.4	10.4	11.4	12.4	14.7	15.5	17.1	18.0	19.6	23.3	24.5
Automobile and railroad train collision.....	2	2	2	2	2	2	1.0	1.2	1.5	1.8	1.7	1.5
Automobile and street car collision.....	2	2	2	2	2	2	0.4	0.5	0.4	0.5	0.4	0.4
Other external causes.....	79.0	82.6	62.5	56.9	57.1	58.8	59.7	58.9	57.0	56.3	55.5	54.2
Unknown or ill-defined diseases.....	73.8	23.1	18.3	15.9	17.6	17.0	17.5	17.4	17.8	20.6	20.9	21.0

¹ Includes capillary bronchitis.² Not separately tabulated.³ Excludes diseases of coronary arteries.⁴ From 1900 to 1920 includes ulcer of the duodenum.⁵ From 1900 to 1920 includes adhesions of intestines.⁶ Excludes deaths from collision with railroad trains and street cars.

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DIVISION XXIII

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

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| <p>ALLIANCE AGAINST FOOD FRAUD, 300 Madison Ave., New York City.</p> <p>ALLIED DENTAL COUNCIL, 425 Lafayette St., New York City.</p> <p>AMERICAN ACADEMY OF APPLIED DENTAL SCIENCES, 587 Fifth Ave., New York City.</p> <p>AMERICAN ASSN. FOR MEDICAL PROGRESS, 370 Seventh Ave., New York City.</p> <p>AMERICAN COLLEGE OF SURGEONS, 40 E. Erie St., Chicago, Ill.</p> <p>AMERICAN GYNECOLOGICAL SOCIETY, 104 S. Michigan Ave., Chicago, Ill.</p> <p>AMERICAN HEART ASSN., INC., 370 Seventh Ave., New York City.</p> <p>AMERICAN INSTITUTE OF HOMEOPATHY, 393 Seventh Ave., New York City.</p> <p>AMERICAN LARYNGOLOGICAL ASSN., 1811 Spruce St., Philadelphia, Pa.</p> <p>AMERICAN LARYNGOLOGICAL, RHINOLOGICAL AND OTOLOGICAL SOCIETY, INC., 145 W. 58th St., New York City.</p> <p>AMERICAN MEDICAL ASSN., 2 E. 103rd St., New York City.</p> <p>AMERICAN OCCUPATIONAL THERAPY ASSN., 175 Fifth Ave., New York City.</p> <p>AMERICAN OPHTHALMOLOGICAL SOCIETY, 2213 Walnut St., Philadelphia, Pa.</p> <p>AMERICAN OSTEOPATHIC ASSN., 844 Rush St., Chicago, Ill.</p> <p>AMERICAN PHYSIOLOGICAL SOCIETY, Rockefeller Institute, New York City.</p> <p>AMERICAN SOCIETY FOR THE CONTROL OF CANCER, 25 W. 43rd St., New York City.</p> <p>AMERICAN SOCIETY OF CLINICAL PATHOLOGISTS, 256 Metropolitan Bldg., Denver, Colo.</p> <p>AMERICAN SOCIETY OF TROPICAL MEDICINE, Box 131, Pa. Ave. Station, Washington, D. C.</p> | <p>AMERICAN VETERINARY MEDICAL ASSN., 716 Book Bldg., Detroit, Mich.</p> <p>ASSN. OF AMERICAN MEDICAL COLLEGES, 25 E. Washington St., Chicago, Ill.</p> <p>ASSN. OF MILITARY SURGEONS OF THE U. S., Army Medical Museum, Washington, D. C.</p> <p>EDWARD L. TRUDEAU FOUNDATION FOR RESEARCH AND TEACHING IN TUBERCULOSIS, Saranac Lake, N. Y.</p> <p>GORGAS MEMORIAL INSTITUTE, 1598 Madison Ave., New York City.</p> <p>NARCOTIC DRUG CONTROL LEAGUE, INC., 40 Wall St., New York City.</p> <p>NATIONAL LEAGUE FOR NURSING EDUCATION, 370 Seventh Ave., New York City.</p> <p>NATIONAL TUBERCULOSIS ASSN., 370 Seventh Ave., New York City.</p> <p>NEW YORK ACADEMY OF MEDICINE, 2 E. 103rd St., New York City.</p> <p>NEW YORK ACADEMY OF SCIENCES, 77th St. and Central Park West, New York City.</p> <p>OSTEOPATHIC AID ASSN., 103 Park Ave., New York City.</p> <p>PUBLIC HEALTH COMMITTEE, 2 E. 103rd St., New York City.</p> <p>ROCKEFELLER FOUNDATION, 61 Broadway, New York City.</p> <p>SOCIETY OF AMERICAN BACTERIOLOGISTS, Cornell University, Ithaca, N. Y.</p> <p>SOCIETY OF MEDICAL JURISPRUDENCE, 2 E. 103rd St., New York City.</p> <p>SOUTHERN MEDICAL ASSN., Empire Bldg., Birmingham, Ala.</p> <p>UNITED BOARD OF HEALTH CONTROL, INC., 233 Broadway, New York City.</p> <p>UNITED HOSPITAL FUND, 105 E. 22nd St., New York City.</p> <p>UNITED STATES HAY FEVER ASSN., Bethlehem, N. H.</p> |
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DIVISION XXIV

PHILOSOPHICAL AND SOCIAL SCIENCES

PHILOSOPHY

By A. A. ROBACK

UNIVERSITY EXTENSION LECTURER, COMMONWEALTH OF MASSACHUSETTS

PHILOSOPHY AND THE WORLD SLUMP

Whether the financial crisis has served to stimulate or inhibit thinking, the facts point to the reduced output of philosophical literature in America during 1932 as compared with 1931, and we have already seen that the year 1931 represents a drop in philosophical expression. The figures are interesting, moreover, in

showing that religion and theology sustained a similar decline, while sociology and economics exhibited an upward trend. The table below presents the number of books published in the country during September, 1931 and 1932, also for the nine month period ending with September of both 1931 and 1932 in the spheres of philosophy, religion and theology, sociology and economics.

	September 1932	September 1931	January to September 1932	January to September 1931
Philosophy.....	16	27	187	220
Religion and Theology.....	39	60	442	572
Sociology and Economics.....	34	38	458	430

In spite of the disinclination on the part of publishers to bring out philosophical works when the potential clientèle has necessarily dwindled, there are many books published in this country of foreign authorship, e. g. H. Keyserling's *South American Meditations* (Harper) a miscellany of philosophical reflections on intimate phases of life, in the author's characteristic style; Otto Rank's *Art and Artist* with a preface by Ludwig Lewisohn, (Knopf) a philosophy of art which is decidedly psychoanalytic in essence; the third volume of Egon Friedell's monumental *Cultural History of the Modern Age* (Knopf) which deals with the crisis of the European soul and covers the period from the Black Death to the World War; R. H. Thouless's *Straight and Crooked Thinking* (Simon and Schus-

ter), which is a popular account of the thought process in an entertaining style; Gerald Heard's *The Emergence of Man* (Harcourt Brace), a simplified philosophy of history and W. Tudor Jones's *Contemporary Thought of Germany* (Knopf) and Oswald Spengler's *Man and Technics; A Contribution to a Philosophy of Life* (Knopf), his treatment of the machine age being in line with his well-known views on the decline of the West. Other foreign works brought out in this country are a translation of Otto's *Mysticism: East and West* (Macmillan), and G. Lowes Dickinson's *Plato and His Dialogues* (Norton).

GENERAL

Under this caption may be understood all such books as have an ap-

peal to the layman with a leaning toward philosophy or a bent for thinking. Such books, *e. g.* are H. Osborn Taylor's *Fact, The Romance of Mind* (Macmillan), with its warm spot for religious intuition and its brief for the type of philosophy which Whitehead's *Process and Reality* stands for as against Dewey's *Quest of Certainty*; R. H. Thouless's *Straight and Crooked Thinking* (Simon and Schuster), with its plethora of pre-digested analyses and amplified illustrations; and W. B. Pitkin's large tome entitled *A Short Introduction to the History of Human Stupidity* (Simon and Schuster) which, is apparently only a preamble to the History itself. Although the latter volume is really an exposé of the erratic nature of the human mind, both in its individual and collective phases, there is much in the book to recommend itself to philosophers and particularly logicians, in spite of the author's flagrant prejudices.

TEXTBOOKS

What seems to be an outcome of the economic decline is the paucity of new textbooks in the philosophical disciplines. In the place of fresh presentations, we have at least half a dozen revised texts. Thus in the *History of Philosophy*, there are: Jerusalem's *Introduction to Philosophy*, (Macmillan), fortunately brought up to 1922 by the author himself shortly before his death, and including brilliant chapters on sociology and phenomenology; Dewey and Tufts' widely used *Ethics* (Holt) of a quarter of a century ago; J. E. Creighton's *Introductory Logic* (Macmillan), now revised and enlarged by H. R. Smart, and A. K. Rogers' *A Student's History of Philosophy*, which has been used for nearly a whole generation and which in its revised third edition brings us as far as Bergson and Pragmatism with a reference here and there to American realism. The only new introduction to philosophy is that by D. S. Robinson, entitled *An Introduction to Living Philosophy* (Crowell) which is both comprehensive and broad, although it lacks the inspiration of many of its predecessors.

THE METAPHYSICAL TREND

It is perhaps a little surprising that during 1932, the chief interest in American philosophic circles seems to have centred in metaphysics. Even logic has not been so much in the forefront, while as to the philosophy of religion, ethics, and political philosophy, very few books or important articles can be cited in these usually influential spheres. The upswing of metaphysics is due undoubtedly in large measure to the excursions of renowned physical scientists into regions spiritual, but aside from this explanation, the fact remains that the subject in philosophy which had fallen into desuetude many years ago is coming into its own, and even such terms as cosmology and cosmogony, erstwhile associated only with Mediaevalism are beginning to be heard at philosophical meetings.

The revised edition of J. E. Boodin's *A Realistic Universe* (Macmillan), contains a new introduction which seeks to place metaphysics on its pristine pedestal. The same author at the 1931 meeting of the Pacific Division of the American Philosophical Association presented a discussion of Matter, Space and God. From a physical point of view, H. Weyl discoursed on the metaphysical implications of science in the Terry Lectures at Yale University, which were brought out under the title of *The Open World* (Yale Univ.). The metaphysical approach is also stressed in an article by V. F. Lenzen called "The Metaphysics of Space and Time" (*J. Phil.*, March, 1932).

The revival of metaphysical thought is reflected in T. Whittaker's *Prolegomena to a New Metaphysics* (Macmillan, 1931). T. T. Lafferty's article "Some Metaphysical Implications of the Pragmatic Theory of Knowledge" (*J. Phil.*, April, 1932); W. J. Garmersfelder's "Current Scepticism of Metaphysics," which was read at the 33d annual meeting of the Western Division of the American Philosophical Association; and C. Hartshorne's "Contingency and the New Era in Metaphysics" (*J. Phil.*, August, 1932).

Even the late G. H. Mead, whose Carus Lectures were brought out

posthumously under the title of the *Philosophy of the Present* (Open Court XL) managed to inject a good deal of metaphysical reflection into the volume, in spite of its pragmatic tenor in general.

While most of the writers who have touched on metaphysical problems evinced a decided sympathy for the declining branch of philosophy, G. B. McGilvary in his presidential address before the Western Division of the American Philosophical Association, the title of which was changed from "Some Implications of Present Day Physical Theories" to the briefer "Physics and Metaphysics" (*J. Phil.*, July, 1932) argued against the hypostatization of physical quantities as if they were experienced objects. The space-time which metaphysicians talk about so profusely, he contended, was not the same as experienced space and experienced time. The metaphysicians, he felt, were making assumptions outside of their legitimate spheres, yet he stated that he found himself with strong metaphysical impulses in the direction of common sense consistent with facts and logic.

CAUSALITY

The problem of causation, which for some time lay slumbering in the older philosophical treatises, too, has come in for a good deal of attention. The topic selected for the lectures before the Philosophical Union of the University of California for 1932 was "Causality," and in the subsequently published volume *Causality* (Univ. of California Publications in Philosophy, XV), we have eight papers in various phases of the problem. It would be impossible in the restricted space of a survey to present the main results of each paper, but Mr. Schlick's "Causality in Everyday Life and in Recent Science" is worth mentioning, not only because Schlick is a leading representative of the Vienna school of logical positivism, but because his discussion brings to the fore the issue between physical and psychological indeterminism. He is emphatically opposed to the distilling of metaphysical conclusions from the recent discoveries of science and holds that causality

must be envisaged in the sense of allowing the procedure of "extrapolation," which means the possibility of applying a function with any properties, not necessarily particular mathematical properties, to such data as have not been used for its construction. Whatever the fate of the principle of indeterminacy in physics, and whatever the course of quantum physics itself, the view of causality as possibility of extrapolation need never suffer. Other papers which deal with the same problems from different angles are Savery's "Chance and Cosmogony" which was the presidential address before the 8th annual meeting of the Pacific Division of the American Philosophical Association, at Stanford University; C. J. Ducasse's "Of the Nature and Efficiency of Causes" and R. H. Claudius's "Causality from the Point of View of the Engineer" (both papers in *Phil. Review*, XLI, July, 1932).

LOGIC AND METHODOLOGY

The output in this broad field has been rather scant in 1932 as compared with that of previous years, yet the result is substantial. One reason is the publication of the logical papers as volume II of C. S. Peirce's *Collected Writings*, which are as stimulating as and even more readable than the first volume. In this second volume *Elements of Logic* (Harvard Univ.), are included the "Grand Logic" and also part of the "Minute Logic." Peirce's logic of discovery and the speculative grammar dealing with the theory of signs are valuable even to-day, in spite of the many books on symbolism and semantics that have come out in the last decade. Peirce shines particularly as a model of clear and concrete exposition. His logical nomenclature alone is an achievement.

The textbook on *Symbolic Logic* (Century,) by C. I. Lewis and C. H. Langford is largely an extension of the logistic method in applying the logic of propositions to the theory of sets of postulates. Perhaps the most interesting part of the volume is the analysis of the paradoxes in logic. The new and enlarged edition of

Creighton's *Introductory Logic* has already been adverted to earlier in the survey. The *Monist* published most of the periodical material that could be designated as logic, a considerable portion being papers that were read at the meetings of the American Philosophical Association.

The most important work on the philosophy of science is undoubtedly B. Bavinck's *The Natural Sciences*, a translation from the German. It is comprehensive in the treatment of the scientific philosophy of today and moderate in its contentions. J. Burnham and P. Wheelwright's *Introduction to Philosophical Analysis* (Holt), develops an interesting methodology in the first part of which the various "realms of discourse" are treated in common as to dominant categories and problems; in the second part, the disciplines are considered disjunctively.

THEORY OF KNOWLEDGE

The theory of knowledge is represented by a spirited controversy between A. O. Lovejoy, E. B. McGilvary and A. E. Murphy. In his series of articles "Dualisms Good and Bad" (*J. Phil.* June, July), Lovejoy argues against both types of realism which the latter stand for and comes to the conclusion that dualism either of the epistemological or the psychological variety cannot be avoided. This controversy is an outgrowth of the criticism directed against his Carus Lectures by both McGilvary and Murphy.

A Symposium called "Studies in the Nature of Facts" (*Univ. of California Publications in Philosophy*, XIV, 232), which constitutes the lectures delivered before the Philosophical Union of the University of California during 1931, is really a study of epistemology. The subjects treated are "Fact and Interpretation" by W. R. Dennes; "An Approximate Definition of Fact" by L. J. Henderson; "Fact and Perspective" by G. P. Adams; "The Factitiousness of Qualified Factuality" by J. Loewenberg; "Middle-Sized Facts" by S. C. Pepper; "Factuality a Regulative Ideal" by H. D. Roelofs and "The Metaphysical Import of Scientific Facts" by V. F. Lenzen.

PHYSICAL REALISM

R. W. Sellars' *The Philosophy of Physical Realism* (Macmillan) is a lucid orientation in present-day philosophy, particularly American. The author shows why he refuses to align himself with idealism as well as with objective relativism, pragmatic and logical positivism, and even realism in any other than a physical connotation. The divergences of current philosophical tendencies from earlier fundamentals are well brought out.

PHILOSOPHY OF MIND

In an analytical account of the main conceptions of mind, C. W. Morris in his *Six Theories of Mind* (Macmillan), outlines mind as substance, mind as process, mind as relation, mind as intentional act, mind as substantive and finally mind as function. It is evident from the last chapter that the author is at one with Dewey and Mead in regarding mind as a synthetic instrumental function.

ETHICS AND VALUE

Aside from the new edition of Dewey and Tufts' *Ethics*, the reviewer knows of no text or treatise on the subject which has been published in America. There is a solid paper on "The Uniqueness of Man" (*Univ. of Calif. Publications in Philosophy*, XVI, 1-27) by W. G. Everett, who dwells on the relation between modern science and the values. A little book on *Values* by M. Sills and E. S. Holmes (University of Chicago, VIII), and R. B. Perry's "Value and its Moving Appeal" (*Phil. Review*, XLI, July, 1932) contending against the tendency to introduce a new method of approach in the realm of value (Practical Reason, *e. g.*) are about the only other contributions to the whole field of axiology. Haroutunian's *Piety vs. Moralism* will be mentioned later in connection with American philosophy.

AMERICAN PHILOSOPHY

There has been a marked increase of interest in the history of American philosophy as shown by the amount of literature published on American thought both in this country and

abroad. In Italy, where formerly only James and Royce were familiar figures, we find that G. de Ruggiero has translated Dewey's *Reconstruction in Philosophy*, providing it with a critical introduction. There is also a considerable article in a new Italian periodical by G. Bach on Anglo-American moral philosophy "Orientamenti della filosofia morale Anglo-Americana" (*Arch. di Storia della Filosofia*, No. 1).

In France, E. A. Johnson has written on *American Economic Thought in the Seventeenth Century* (King), while the influence of Royce in Indiana has been summarized by K. F. Leidecker in a brochure *Josiah Royce and Indian Thought* (Kailas Press, 1931).

In a book called *The Periodicals of American Transcendentalism* (Duke Univ. 1931), C. L. F. Gohdas has selected eleven periodicals appearing between 1832 and 1886, which show the trends of American philosophy during that period. A useful, though by no means complete, compilation is V. E. Harlow's *A Bibliography and Genetic Study of American Realism* (Harlow, 1931), with its illuminating introductions to the different types of realism.

Of a more important nature is the symposium of *Contemporary Idealism in America*, (Macmillan) edited by C. Barrett and participated in by Palmer, Urban, Brightman, Hoernle, Hocking, Boodin, and others.

In J. Haroutunian's *Piety vs. Moralism* (Holt) will be found an account of the Puritanical stages of New England theology and ethics.

A biography of William James was for a long time a desideratum, and although a definitive full-sized life of America's foremost philosopher is still waiting to be written, we have in C. H. Grattan's *The Three Jameses* (Longmans), a family biography in which about a third of the space is devoted to William. The book is written from a literary point of view and is particularly interesting in giving us the background of the two brothers who have added not a little to America's intellectual stature.

Berkeley's *American Sojourn* (Harvard Univ.) by B. Rand deals with an unfamiliar episode of the Irish Bishop's life in America, his visit to Harvard University and his considering a project to found a college in Newport rather than in Bermuda.

SCHOLASTIC PHILOSOPHY

Scholasticism has shown progress in more than one way. The *Proceedings* of the Seventh Annual Meeting of the American Philosophical Association which was held at St. Louis, Mo., Dec. 29 and 30, 1931 fill over 200 pages, but the publications of the members are by no means confined to the *Proceedings* or even the periodical of this Association, *The New Scholasticism*. The two most important books in this field for the year are probably *Contemporary Philosophy and Thomistic Principles* (Bruce) by R. G. Bandas, a well-considered review of contemporary philosophy in the light of Thomism, and *Aspects of the New Scholastic Philosophy* (Benziger) edited by C. A. Hart, whose essay "Neo-Scholastic Philosophy in American Catholic Culture" is far more than a catalogue of the accomplishments of St. Thomas's followers. In the philosophical part of this volume, which is a token of homage to Dr. Pace, vice rector of the Catholic University at Washington, we find papers on "The New Physics and Scholasticism" by F. A. Walsh, "The New Humanism and Standards" by L. R. Ward, etc. The neo-scholastic conception is seen not in purely philosophical books alone, but in the various disciplines allied with philosophy there are books bearing the Thomist stamp, e. g. H. Gruender's *Experimental Psychology* (Bruce, XIII, 455) E. J. Ross's *A Survey of Sociology* (Bruce XV, 570) and J. Husslein's *The Christian Social Manifesto* (Bruce, XXIV, 328). *The Science and Culture Series*, edited by J. Husslein already embraces a goodly number of scholarly books well produced technically, books which attest to the fact that the authors are *au courant* with philosophy and science in general.

MISCELLANEOUS

There are a few publications which cannot be classified in one or another of the ordinary philosophical disciplines. The most important of these is F. Haserot's *Essays on the Logic of Being* (Macmillan). In spite of the title it does not belong to the sphere of logic. The book constitutes a number of short pithy essays on all sorts of philosophical problems, and had it been more discursive and concatenated it might have shaped itself into a system of philosophy. The author is a metaphysician with dogmatic tendencies, and in his analysis of the emotions is apparently influenced by Spinoza, both materially and formally. Under the same rubric, we shall have to note Volume I of the *College of Pacific Publications* (157) edited by P. A. Schilpp, with papers by Schlick, Adams, Burt, and Starbuck.

SPINOZA COMMEMORATION

There were a half a dozen biographies of Spinoza published during the year in connection with the Spinoza Tercentenary. They are by Lewis Browne, Abraham Wolfsohn, Frederick Kettner, Benjamin de Casseres and Trautwein. In addition, a Spinoza book in Yiddish has appeared under the editorship of J. Shatzky. At the City College of New York Auditorium a commemoration gathering took place in November at which a number of Spinozists spoke.

CHINESE PHILOSOPHY

It may be due to the Eastern conflict that China is becoming a centre of interest and its thought, as represented by its ancient philosophers, is made more accessible to Westerners. Within the last year or so, I. & L. E. Mears have brought out *Creative Energy* (Dutton) which is a translation from the original of *Yih King, the Book of Changes*, including an introduction. L. S. Hsü's *The Political Philosophy of Confucianism* (Dutton) is an important approach to the Chinese background, socially as well as politically. Mencius has been translated by L. A. Lyall and published by Longmans while a booklet with selections from Confucius, *The Wisdom of Confucius* (International) by M. M. Dawson, gives us another glimpse into the hoary past of China's culture.

MEETINGS

There were no fewer than four meetings of associations besides local conferences; The Eastern Division of the American Philosophical Association met at Bryn Mawr at the close of the year, the Pacific Division of the American Philosophical Association met at Stanford University and the 33d annual meeting of the Western Division of the American Philosophical Association took place in March at the University of Michigan. The American Catholic Philosophical Association met at St. Louis, Mo., on Dec. 29 and 30, 1931.

PSYCHOLOGY

BY WILBUR S. HULIN

PROFESSOR, PRINCETON UNIVERSITY

GENERAL

Scientific psychology has been molded to a large degree by the pressure of other exact sciences: the accurate matching of experiences to the anatomy and physiology of sense receptors, the measurement of action and conduct in relation to muscular coordination, the determination of the limits of discrimination and judg-

ment. All of these topics have required special systematic study. Thus psychology today has assumed the same observational and experimental methods as the other sciences. The strict standards of the American Psychological Association (including about 700 members) represent the national status of the science.

MEETINGS

American Psychological Association.

—The American Psychological Association annual convention was held at Cornell University, Sept. 8-10. The president, W. S. Miles, discussed his recent survey of the relationship between "age and human ability" (*Psych. Rev.*, Jan., 1933). Among the general topics presented J. Peterson criticized the use of the notion of "insight" as an explanatory principle, because experiment usually shows several factors present in the learning process. R. M. Yerkes declared that historically psychology had been anthropocentric; the results, though justifiable, should be assimilated into a more comprehensive biocentric science. G. W. Hartmann described some "changes in visual acuity through simultaneous stimulation of the other eye or of other sense organs" which suggested a dynamogenic influence of one sensory excitation upon another. R. R. Sears and S. M. Newhall outlined their determinants of the relationship between limens of barely perceptible visual stimuli derived by verbal report methods and by conditioned response methods. Several motion picture films of animal learning and child behavior were exhibited. A. Gesell has prepared "a photographic atlas of infant behavior patterns." In order to analyze the "drive" factor in the complicated behavior of ants, T. C. Schneirla imposed the learning of a given maze under different sets of conditions: the ant traversed the maze on the way to food, unladen, and then returning laden with food; in the latter case errors were more quickly eliminated indicating the effort to economize rather than to explore. J. B. Miner reported a new, rapid and apparently effective cure of the morphine habit by means of blister serum. H. F. Harlow paralyzed the skeletal motor system with curare and then demonstrated that conditioned responses to a bell could not be established. Professor L. L. Thurstone was elected president for 1932-33.

International Congress.—At the Tenth International Congress of Psy-

chology which met in Copenhagen, August 22-27, the American delegation of 90 persons constituted the largest national representation present. The Americans included G. W. Allport who spoke on "the radio as a stimulus situation"; W. S. Hunter, "voluntary activity"; R. M. Ogden, "*Gestalt Psychology*" and "behaviorism"; H. S. Langfield, "the situational factor in judgments of facial expression"; C. E. Seashore, "the vibrato."

Southern Society.—At the meeting of the Southern Society for Philosophy and Psychology, New Orleans, December 29-31, the presidential address by H. M. Johnson considered "some follies of emancipated psychology."

PERCEPTION

Vision.—In an "experimental investigation of brightness constancy" R. B. McCleod tested the extent of color constancy in various everyday shadow conditions; he showed that contrast effects do not merely follow photochemical laws, but vary according to attitudinal influences (*Arch. Psych.*, Feb.). Many factors influence the "size and form of the visual field" of which some are objective, such as light intensity, and some are anatomical, such as curvatures of the cornea and lens; C. E. Ferree and G. Rand add further data on the influence of the size of the stimuli and the contrast of stimulus objects with background (*Jour. Gen. Psych.*, Apr.). D. McL. Purdy has compared "chromatic and achromatic colors" in reference to his finding that retinal conditions alone will not determine whether a light stimulus will be colored or not (*Psych. Rev.*, July). W. W. Wilcox says that "the basis of dependence of visual acuity on illumination" as illustrated by the shift of contours is due to the behavior of the "light sense" rather than to a "spatial sense" (*Proc. Nat. Acad. Sci.*, Jan.). New examples of "entoptic colors" resulting from neon tube observations have been described by E. F. Way (*Science*, Jan.). One of the rare cases of "blue-blindness" is reported by C. E. Huntington (*Amer.*

Jour. Psych., Jan.). M. A. Tinker has covered many phases of the span of perception such as is involved in advertisement and billboard signs, and in an experimental test on "the effect of color on visual apprehension" has shown that the brightness contrast is the more compulsory determinant of legibility and attention (*Genet. Psych. Monog.*, Feb.). F. Angell has discussed a topic on which he is the leading American student, the "horizon illusion," according to which the moon or sun appears larger at the horizon than at the zenith; he concludes that in consideration of recent work, especially by the Configurationists, the illusion represents the result of our spatial concept of the surrounding world rather than any specific effect of the stimulus object itself (*Jour. Gen. Psych.*, Jan.). "Eidetic imagery," the peculiar ability of some children to arouse vivid, detailed visual memories, has been reviewed by H. Klüver who regrets the inclination of investigators to apply prematurely the phenomenon to personality measurements before the phenomenon is scientifically understood (*Psych. Bull.*, March).

Audition.—The flood of recent experimental demonstrations of action currents from auditory nerves has been brought into critical and even skeptical scrutiny by G. Kreezer who himself has tested the various technical aspects of the problem; there seem to be sources of electrical energy which are mistaken for nervous impulse; the great importance of this problem lies in the assertion that hitherto unobtainable frequencies of impulses have been recorded through systems of electrical amplification; this would revolutionize neurology; also, if the nerve frequencies correspond to the vibration frequencies of sound stimuli a new sort of theory about the action of the inner ear mechanism is needed (*Amer. Jour. Psych.*, Oct.). A further determination of "loudness and intensity relations" has been made by L. B. Ham and J. S. Parkinson (*Jour. Acoustic. Soc. Amer.*, Apr.). Loud tones will elicit galvanic skin responses, but there is no difference in the response for different

itches: L. E. Misbach (*Jour. Exp. Psych.*, Apr.).

Touch.—"Touch and kinaesthesia" are reviewed by M. J. Zigler (*Psych. Bull.*, Apr.). M. Weichbrodt found that "tactual compared with visual discrimination of consonantal qualities" as in lip reading were often more sensitive especially as a supplement to the visual (*Jour. Gen. Psych.*, Jan.). M. J. Zigler has shown that the "pressure adaptation-time" depends both upon the extent and the intensity of the stimuli; thus areal conditions are effective upon the supposedly punctiform distribution of tactile end-organs (*Amer. Jour. Psych.*, Oct.). F. Heiser has also shown that a non-punctate distribution of sensibility on the skin is possible in tests of temperature stimulation when pressure, skin temperature and duration are carefully controlled (*Arch. Psych.*, May). M. N. Crook has demonstrated that the "sensory aspects of electrical stimulation" upon a superficially anaesthetized area of skin involve definite qualities and adaptation characteristics (*Jour. Gen. Psych.*, Jan.). K. M. Dallenbach has compared the error of localization of a finger tip in which there has been afferent nerve regeneration and of normal finger tips; the normal reveal no significant differences of local sign between each other and so are taken as standards by which to test the injured member (*Amer. Jour. Psych.*, Apr.).

Taste and Smell.—"The psychology of taste and smell" are reviewed by one of the leading authorities, E. A. McC. Gamble; while many experiments represent a skeptical attitude toward the Henning classification of olfactory qualities as based on organic structural distinctions, yet a definite departure has not yet succeeded; the most promising method of analysis of qualities seems to be that of selective exhaustion of complex odors into their simpler components (*Psych. Bull.*, Apr.).

METHOD

Laboratory Texts.—*A Psychology Laboratory Manual* consisting of fifty experiments that have "worked" has been published by W. C. Valentine

(Prentice-Hall). H. Gruender has a large volume on *Experimental Psychology* (Bruce). An important contribution of the year to scientific treatment of psychological data is C. C. Brigham's summary and evaluation of methods used in six years of study of the scholastic aptitude test of the College Entrance Examination Board, entitled *A Study of Error*; concepts of general theoretical psychology are applied to the specific problems (Coll. Entrance Exam. Board). J. W. Dunlap and A. K. Kurtz have contributed an invaluable compilation of statistical aids for students in their *Handbook of Statistical Nomographs, Tables and Formulas* (World). W. V. Bingham also has discussed "reliability, validity and dependability" (*Jour. Appl. Psych.*, Apr.).

Psychophysics. — S. W. Fernberger's current observations on the judgment of lifted weights include a measure of the time involved in making the judgments which is equally significant for relative judgments or the recently devised method of "absolute judgment"; practice reduces the time in either case (*Amer. Jour. Psych.*, July). Recognizing that all psychophysical methods are test or error, J. P. Guilford has proposed a psychophysical law, *i.e.*, a new formula of the Weber-Fechner law which includes experimental constants which permit the fitting of any data (*Psych. Rev.*, Jan.).

AFFECTION

A theory of emotion, to be adequate, must satisfy the requirements of data upon both expressive behavior and introspective qualities as well as abnormal expressions and definite physiological functions; these criteria, according to H. F. Harlow and R. Stagner, are not satisfied by the James-Lange theory as supported by Newman, Perkins and Wheeler; the majority of current studies are agreed in denying specific emotions (*Psych. Rev.*, Sept.). H. Cantril and W. A. Hunt tested the "emotional effects of adrenalin injections" and found that mere injection produces only a "cold emotion" of vague visceral changes, but the injection may also affect cog-

nitive changes about which a real emotional state becomes organized (*Amer. Jour. Psych.*, Apr.). E. Duffy sought to measure "muscular tension as a technique to study emotional tendencies"; it was concluded that emotion is characteristically a loss of coordination which likewise is a characteristic of increased muscle tension (*ibid.*, Jan.). F. W. Irwin has again brought up the question of "perceptions of difference in facial expression" which is commonly believed to be rather fine, but which in tests is found to be quite conflicting; Irwin used the simple DaVinci diagrams to test the exact extent of variability in these judgments (*ibid.*). Every year there are studies of "the learning and retention of pleasant and unpleasant activities"; the current work, by H. Cason, has contributed a further hint, namely, that the affective states are themselves learned (*Arch. Psych.*, Jan.). A book on motives and judged values, called *The Mind in Action* comes from the educator, A. C. Garnett (Appleton).

MODIFICATIONS OF RESPONSE

Reflex Studies. — Many alleged "mind readers" depend upon a detection of the small reflex movements which accompany a shift of the subject's attention; a current test of this relation of "attention and bodily sway" indicated considerable individual difference as some subjects seemed to maintain a better attitude of attention with muscular relaxation than by strain: E. B. Skaggs and others (*Amer. Jour. Psych.*, Oct.). V. E. Fisher was unable to elicit a "conditioned response during hypnosis," and concluded that a normal appreciation of the stimulus was necessary (*Jour. Exp. Psych.*, Apr.). H. H. Jasper and E. Murray have demonstrated that stutterers have more irregularities and regressions of eye movements in reading than normal persons (*ibid.*, Oct.). L. H. Cohen has made a series of experiments on the eyelid reflex demonstrating in overt response the probable nature of the nervous refractory phases involved (*ibid.*, Aug.). In eye movements experiments the eyelids usually offer a disturbance, but S. M. Newhall has

devised lid holders which prevent interruptions in the photographs of corneal reflections (*Amer. Jour. Psych.*, July). A group of essays, called *Studies in the Dynamics of Behavior* includes articles by C. W. Darrow and L. L. Heath on "reaction tendencies relating to personality," which demonstrate that galvanometric reactions somewhat indicate health and extroversion, slow recovery often occurs among the neurotic; C. Landis reports "an attempt to measure emotional traits in juvenile delinquency" including tests of intelligence which were found to bear no relationship with emotional factors, and introversion-extroversion tests which showed less significance with juveniles than with adults (Univ. Chicago Press). L. F. Beck found little "relation of speed of reaction to intelligence" when using several standard reaction time tests correlated with intelligence tests (*Amer. Jour. Psych.*, Oct.).

Complex Processes.—As a means of "increasing the I.Q." E. Lowry says that improvement of reading ability is an outstanding factor (*School & Soc.*, Feb.). A useful manual of "the measurement of general spelling ability involving comparisons between techniques" has been compiled by W. W. Cook (*Univ. Iowa Stud.*, No. 221). The relation of *Modern Psychologies and Education* has been outlined by C. D. Ragsdale; the outstanding pedagogical institutions of America have well-known distinctions in their theories of psychology (Macmillan). In an "objective study of concept formation" K. L. Smoke presented his observers with classes of geometrical designs from which generalizations were to be derived; the conclusion was that concept formation was not merely the discovery of common elements but rather like the learning process a response to new situations or relations (*Psych. Rev. Monog.*, No. 191).

Learning.—H. P. Longstaff has attempted a partial "analysis of some factors conditioning learning in general psychology" (as found in the elementary classes at the University of Minnesota); the effect on interest and achievement by the lecture and quiz method or by the all-lecture method

seemed equal (*Jour. Appl. Psych.*, Feb.). In order to determine whether "the physiological basis of learning is the reduction of resistance along definite neural paths or whether learning is dependent upon neural changes which make the stimulus effective" through patterns of activity set up, different complexes of stimuli were employed, such as pencil mazes scaled to different sizes, number mazes, series of melodies and of rhythms; R. L. Leeper and D. O. Leeper found that learning progressed about as well with the presentation of a varying series as with a constant, unchanged material (*Jour. Gen. Psych.*, Apr.). L. W. Crafts has confirmed the effectiveness of the associative factors of "primacy and recency" in the case of visual diagrams used as a non-verbal situation (*Amer. Jour. Psych.*, Oct.). The amount of "retention after intervals of sleep and of waking" has been a subject of wide conjecture; tests by E. B. VanOrmer indicated that an eight-hour period of sleep did have a favourable effect on retention (*Arch. Psych.*, May). In seeking "the relation of maze adaptability, maze learning and general intelligence," R. S. Schultz found that group tests of intelligence (such as the American Council of Education Examinations) appears more significantly related to maze learning than to adaptability in maze solving (*Amer. Jour. Psych.*, Apr.). J. F. Lambert and P. H. Ewert studied "the effect of verbal instructions upon the efficiency of various activities such as stylus maze learning and also upon concept formation; more detailed instructions increased the quickness of learning but also revealed widening variations between the performance of different individuals" (*Jour. Gen. Psych.*, Apr.). In a historical "study of mirror-writing in relation to handedness and perceptual and motor habits" L. Carmichael and H. Cashman showed the importance of mirror-writing in a systematic understanding of acquisition of skill in all normal persons; the evidence is of the sort which promises a more profitable study than the older psychology of "attention," "complexes of imagery," "brain centers"

and the like (*ibid.*). E. L. Thorndike has a new publication, *The Fundamentals of Learning* (Bur. Publ. Teach. Coll., Columbia).

PHYSIOLOGICAL AND COMPARATIVE

Animals.—An “animal psychology” number of the *Psych. Bull.* (July) included a general review on “habit formation and higher mental processes in the rat,” by W. T. Heron; after a survey of the theoretical debates concerning “insight” and “S-R bonds,” the reviewer concludes that “a real understanding of behavior can only come through a thorough analysis of the mechanism of the organism in relation to the situation in which the organism is placed.” An outstanding book of the year on comparative psychology is E. C. Tolman’s *Purposive Behavior in Animals and Men*; while avoiding the mentalism of early naturalists an explanation is sought for those actions which seem to involve deliberation and choice as exhibited in lower animals, such as the rat, as well as their expression in man; learning, delayed responses, affective behavior, all are considered in terms of the actual experimental work of recent years (Century). S. Zuckerman has pried into *The Social Life of Monkeys and Apes* (Harcourt, Brace). Experimentally induced “catatonia in animals” by use of various drugs indicates that the degree of complexity of the nervous system determines the extent of influence of the drugs (*Amer. Jour. Psychiat.*, Jan.). C. J. Warden has led from his knowledge of infra-human activity to a description of *The Evolution of Human Behavior* (Macmillan). The identification between “specific afferent impulses and cutaneous sensibility” which has been one of the principal sources of proof of the specific nerve energy theory, but which has been frequently questioned in recent years, *e.g.*, by M. von Frey; however, experimental confirmation now comes from H. Hoagland’s experiments on frogs; using an amplifier and oscillograph in conjunction with a loud speaker, camera and standing-wave screen observations were made on the action potentials of single nerve

fibers supplying receptors in the frogs’ skin; some individual end organs were apparently responsive only to light touch, others to excessive (painful?) stimuli, and a few to both types; constant differences in rate and amplitude of various stimuli were found (*Jour. Gen. Psych.*, Apr.). M. Upton and W. H. Stravsky tested the “geotropic conduct of rats” by training them to discriminate between various angles of inclination of floor; the rats’ training only held for given situations and did not seem to consist of rigid conditioned responses since mere inclination of the floor did not elicit the trained responses when other familiar aspects of the training situation such as side walls were absent (*ibid.*, Jan.). Less delayed reaction could be allowed albino rats if they were kept in motion during the delay before seeking a goal, according to W. G. McAllister; visual and auditory cues were better learned than kinaesthetic, contrary to a widespread opinion (*Comp. Psych. Monog.*, Jan.). E. L. Thorndike has reviewed the problem of “reward and punishment in animal learning” with the conclusion that “rewarding a connection always strengthened it substantially; punishing it always weakened it a little or not at all” (*ibid.*, March).

Physiological.—E. Jacobson has attempted to measure “the electrophysiology of mental activities” by means of a string galvanometer which electrically records the action currents of nerves and muscles; the records revealed that even in the case of imagery there was heightened tension in those bodily members involved in the imagined action, such as in the arms while thinking of playing the piano (*Amer. Jour. Psych.*, Oct.). W. B. Cannon, famous for his treatment of the emotions, has written a book upon further experimental work concerning physiological adaptations of the organism, especially the visceral: *The Wisdom of the Body* (Norton). P. C. Squires has described a case of behavior after destruction of several ounces of cortical tissue from the cerebrum; the victim’s actions continued to be “entirely rational” for the several days between the injury and death (*Jour.*

Gen. Psych., Jan.). A. V. Hill has reviewed "the revolution in muscle physiology" which has also modified concepts as to behavior, volition, inhibition, etc. (*Physiol. Rev.*, Jan.).

Genetic Development.—*Behavior Aspects of Child Conduct*, by E. L. Loring, presents methods of inquiry and evaluation rather than magic cures; both the earliest years and school adjustment are treated (Macmillan). R. H. Wheeler and F. T. Perkins have collaborated on *Principles of Mental Development* which is really a textbook in educational psychology wherein a modification of configurationism based on the law of "least action" is taught throughout the book (Crowell). Among the contributions of evidence favorable to the belief in inheritance is that by P. T. Wilson and H. E. Jones on "left-handedness in twins"; the incidence of occurrence was twice as high among twins as among single born (*Genetics*, Sept.). T. H. Morgan has presented a series of articles on "the rise of genetics" in which he submits the most important lines of study: 1. physiological development of genes; 2. conjugation of chromosomes; 3. relation of genes to characters; 4. physico-chemistry of mutation; 5. applied genetics (*Science*—Sept.). H. D. Carter's study of "family resemblances of verbal and numerical abilities" tends to substantiate the influence of heredity rather than environment (*Genet. Psych. Monog.*, July). W. M. Dawson, studying "inheritance of wildness and tameness in mice," found such factors as fastness persisted in a given strain and increased with selected stock (*Genetics*, May). Many examples of inheritance are represented in the *Eugenical News*; the June issue gives C. G. Campbell's presidential address at the Eugenics Research Association on "the biological and economic implications of rural and urban population." A. Gesell has described further data on "the developmental morphology of infant behavior patterns" (*Proc. Nat. Acad. Sci.*, Feb.). "A critical study of two lists of best books for children" by F. K. Shuttleworth has shown an absence of

agreement in children's interests which moderates the sureness with which ethical influence may be as yet controlled (*Genet. Psych. Monog.*, Apr.).

APPLICATIONS

Abnormal.—At the American Psychiatric Association meetings, the president, W. L. Russell, pictured "modern psychiatric organization and progress" in America, a conspicuous aspect of which is the closer cooperation with medical jurisprudence (*Amer. Jour. Psychiat.*, July). W. L. Treadway also reviewed the "medical and psychiatric services in Federal penal institutions" (*ibid.*). L. P. Clark, an American representative of Freudian psychology has expressed the belief that the prenatal integration of action which the embryologists have demonstrated also reveals a prenatal beginning of the feeling of self which may influence lifelong habits of personality (*ibid.*, May). J. Jastrow has written an amusing critical essay on *The House that Freud Built* (Greenberg). "Hypnotic anaesthesia" as measured by the psychogalvanic reflex shows a slight effect upon sensory stimuli; the hypnotic trance has a certain quieting influence (*Jour. Abn. & Soc. Psych.*, June). *An Elementary Psychology of the Abnormal* (McGraw-Hill) has been prepared by W. B. Pillsbury in his customary lucid and adequate style; the volume may be well recommended. W. S. Taylor has described different "students' reactions to abnormal psychology," showing a demand for more concrete material on mental hygiene (*Jour. Abn. & Soc. Psych.*, June).

Social.—F. B. Karpf has outlined the development of *American Social Psychology* bringing together the main threads of the various movements and leaders (McGraw-Hill). G. P. Murdock has pointed out several psychological factors such as habitual behavior which occur in the study of anthropological and social situations which may be combined into a "science of culture" (*Amer. Anthropol.*, Apr.). Many psychology problems are also included in J. H. Landman's *Human Sterilization* (Macmillan). R. H. Gault has presented the results of

a long survey on *Criminality* (Heath). *The Problem of Crime* is also treated by C. J. Ettinger (Long & Smith).

Business.—K. L. Barkley has demonstrated a "new method for determining the relative efficiencies of advertisements in magazines"; a formula involving evaluation of size, color and position has been applied to certain sets of advertisements; the results serve principally as additional evidence to the usual generalizations about advertising values (*Jour. Appl. Psych.*, Feb.). "Two industrial applications of a psychophysical method" are seen in testing the effect of size of pattern on apparent brightness of rubber-tile flooring and effect of cover markings on apparent size of golf balls; the necessary information was best determined by use of the

method of constant stimuli (*ibid.*, June). A subtle phase of selling has been brought out by D. A. Laird in the case of the subconscious olfactory impressions of certain brands of hosiery (*ibid.*). A timely research on *Workers' Emotions in Shop and Home* has been made by R. B. Hersey (Univ. Penn. Press). A compilation of American and European source material on *Industrial Psychology* has been arranged by M. S. Vitells (Norton). "Measurements of character and personality" has been reviewed by G. Watson (*Psych. Bull.*, Feb.). *Diagnosing Personality and Conduct* has proven a helpful book: P. M. Symonds (Century). Many factors subject to psychological investigation are included in E. Farmer's book on *The Cause of Accidents* (Pitman & Sons).

SOCIOLOGY

BY L. L. BERNARD

PROFESSOR, WASHINGTON UNIVERSITY

THE AMERICAN SOCIOLOGICAL SOCIETY

Annual Program.—The 26th annual program of the American Sociological Society was held at Washington, Dec. 28-31, 1931. The central theme for discussion was Social Process. Sectional meetings on the subjects of Rural Sociology, Urban Sociology, Educational Sociology, the Sociology of Religion, Sociology and Social Work, the Family, the Community, and the Teaching of Sociology were also held in connection with the general program. The presidential address by Emory S. Bogardus (University of Southern California) was entitled "The Social Process on the Pacific Coast." L. L. Bernard (Washington University, St. Louis) was elected president of the Society for the year 1932 and C. J. Calpin (U. S. Department of Agriculture) and Neva R. Deardorff (Welfare Council of N. Y. City) were chosen vice presidents.

Reorganization Plan.—An unusual interest and activity developed in the

business sessions. A preliminary meeting of some 25 representative sociologists was called for Dec. 27 at Washington by the chairman of the Special Committee on Sociological Research which had been appointed at the previous meetings at the request of the Social Science Research Council, Inc. (AMERICAN YEAR BOOK, 1931, p. 791). This conference took up the question of the reorganization of the Society as a whole, including the proposals of Maurice Parmelee and his committee which had carried on correspondence with reference to this subject during the year (*Amer. Jour. of Sociol.* XXXVII, pp. 468-470). As a result of the recommendations of this conference the Society delegated to the special research committee (later expanded by the appointment of new members representative of other interests in addition to those of research) the general problem of drawing up a plan for the reorganization of the Society. This reorganized committee met in Swarthmore, Pa., in May and formulated an

elaborate report which was issued as No. 3 of the *Publications* of the American Sociological Society for 1932 to be presented at the meetings to be held in Cincinnati in December, 1932.

OTHER SOCIOLOGICAL SOCIETIES

The Eastern Sociological Conference met in New York City, April 23-24, 1932, discussing the general topic, "The Place of Applied Sociology in the Realm of Science", under the leadership of H. P. Fairchild (president), J. H. S. Bossard, Neva R. Deardorff and Maurice Parmelee. M. C. Elmer (Pittsburgh) was elected president for the year 1932-1933 and H. A. Phelps (Pittsburgh) was re-elected secretary.

The Ohio Sociological Society met at Ohio Wesleyan University, Delaware, O., April 8-9, and discussed a variety of subjects. H. A. Miller was elected president and C. E. Gehlke (Western Reserve) secretary-treasurer.

The Southwestern Social Science Association (Sociology Section) held its meeting at Dallas, Tex., March 25-26. The general topic was "Sociological Research in the Southwest". Thomas C. McCormick (Arkansas) and Mrs. Mattie L. Wooten (Texas State College for Women) were elected chairman and secretary respectively.

The Indiana Association of Economists and Sociologists met at Butler University, Indianapolis, April 21-22 to discuss "Unemployment Insurance." J. W. Putnam and J. W. C. Harper were elected president and secretary for the year 1932-33.

SOCIOLOGICAL RESEARCH

Media.—The dominant interest of the year in Sociology, outside of teaching, has been research. Most of this has been carried on through the universities and colleges, the U. S. Department of Agriculture, under the general supervision of Dr. C. J. Galpin, the state colleges of agriculture and experiment stations, and various private research organizations.

Range of Study.—An analysis of 291 sociological research projects under way in 1931 and reported in the *American Journal of Sociology* (Jan-

uary, 1932) showed members of the American Sociological Society to be engaged in the following types of research, with the number of projects indicated: social problems and social pathology 52, collective behavior and social control 33, social organizations, institutions and culture 32, human nature and personality 31, population and territorial groups 27, the family 22, rural community 21, conflict and assimilation of groups 19, social theory and its history 16, social adjustment and social agencies 13, teaching and research in sociology 13, urban community and the city 7, peoples and cultural groups 5.

Doctoral Dissertations.—The *American Journal of Sociology* (July, 1932) also reported 243 doctoral dissertations and 331 master theses in sociology in progress (1931-32) in the colleges and universities of the United States. Although the returns are incomplete, the sample is adequately indicative of the dominant research interests among graduate students and the professors who direct their work. Thirty-two departments in thirty institutions reported 187 men and 86 women engaged in the preparation of Ph.D. theses in sociology. The institutions reporting took rank in the number of theses under preparation as follows: Chicago 46, Columbia 44, New York University School of Education 36, Wisconsin 17, Southern California 13, North Carolina 9, Northwestern 8, Bryn Mawr and Ohio State, 6 each; Cornell, Iowa, Michigan and Stanford 5 each; Michigan State College, Minnesota, and Vanderbilt, 4 each; Duke, Harvard, Massachusetts State College, and Pennsylvania, 3 each; University of Washington and Yale, 2 each; and Catholic University of America, Colorado, Clark, Indiana, Kansas, Missouri, New York University Graduate School, North Dakota, Teachers College (Columbia), and Virginia, one each.

The titles of the theses represent 96 major interests or concerns, some titles evidencing a major concern with two or three or more phases of social data or problems. These major in-

terests may be summarized as follows, the figures representing the number of theses in which the subject appears as a major interest: Community Organization (specific) 64, Social Organization (general) 6, Cultural Areas and Groups 27, Mores and Folkways 24, Education 32, Social Adjustment 27, Social Attitudes 17, Personality 14, Social Status 9, Social Integration 7, Social Conflict 7, Social Change 15, Social Movements 8, Youth Movements 2, Social Reform 5, Institutions 19, the Family 14, Divorce 3, Religion and the Church 9, Social Control 25, Legal Problems 8, Legal Codes 2, Propaganda 7, Public Opinion 4, Newspapers 3, Leadership 2, Fashion 2, Radio 1, Population 13, Human Ecology 3, Rural Problems 19, Urban Problems 9, Criminology and Delinquency 13, Unemployment 3, Vagrancy and Dependence 2, Relief 1, Social Administration 3, Social Planning 1, Town Planning 1, Child Welfare 3, Immigration 7, Migration 7, Health Work 3, Housing 2, Child Labor 3, Sports and Play 4, Leisure Time 4, Clubs and Associations 5, Working Classes 7, Standard of Living 1, Contraception 1, Historical Themes 11, Environment (social) 11, Environment (physical) 2, Research Technique 11, Social Theory 8, International Relations 2, Business and Industry 5, Language 2, Vocations 3, Age Distribution 2, Sex Distribution 1, Women 3, Negroes 7, Jews 4, Chinese 3, Japanese 3, Czechs 3, Indians 3, Australians 2, Russians 2, Egyptians, Germans, Fins, Italians, Danes, Bulgarians, Swedes, Spanish, Mexicans one each; Citizenship, Cooperation, Prohibition, Inheritance *vs.* Training, Invention, Secret Societies, Slavery, Suicide, General Strike, Chautauquas, Plantation, Revolution one each; L. F. Ward 2; Le Play, Novikow, Spencer one each.

Major Projects.—The President's Research Committee on Social Trends (W. F. Ogburn, chairman) has completed its work and a two-volume summary in 29 chapters will appear Jan. 1, 1933. Separate monographs covering the various phases of the investigation will be published in 1932 and

1933. Nearly 40 investigators, with occasional assistants, have been working on this project for the last three years. F. M. Thrasher's (New York University) extensive investigation of boy's clubs as educational and character forming agencies has also reached completion and a summary of the work appeared in the *Journal of Education Sociology* (September, 1932). New York University has also completed its section of the National Motion Picture Study, under the local direction of Paul G. Cressey. The department of sociology of the Washington Square College of New York University has initiated a "research laboratory district" bounded by E. 23d Street, the East River, E. 14th Street, and Fourth Avenue, which is to serve the students as a means of concrete study of the life and social problems of the area. Marshall's national study of *Marriage and Divorce* is entering the stage of publication. The Maryland report has appeared, and the Ohio report is in press. J. L. Gillin's extended investigation of foreign penal systems is in active prosecution. The University of Chicago reports two major research projects in progress dealing with success and failure in marriage and its measurement and with the prevention and treatment of juvenile delinquency, under the direction of E. W. Burgess, C. R. Shaw and others. Columbia has two local district surveys in process, one urban (Greenwich district, Caroline F. Ware, Director) and the other suburban (Westchester, G. A. Lundberg, director). Howard W. Odum's (North Carolina) southern regional survey, now in progress, has been divided into several functional and regional units and is at work on "A State in Depression." The Bureau of Agricultural Economics of the U. S. Department of Agriculture (C. J. Galpin, Economist) has had 25 major projects in rural population, standards of living, groups, and social contacts in operation during the year 1932. These projects involve the services of various governmental investigators in cooperation with specific local agencies, institutional or other-

wise. The College of Agriculture of Wisconsin has carried on an extensive survey of standards of living and community participation of farm families in six major farm-type areas in Wisconsin (E. L. Kirkpatrick, director). The University of Michigan is making a regional study of the Detroit area (R. D. McKenzie, director). The University of Cincinnati has made a study of population and activity areas in Cincinnati (J. A. Quinn, director) as the basis of a Census Tract Plan to be used for enumeration and study. The Y.M.C.A. College of Springfield, Massachusetts has carried on two major projects during the year on the social aspects of Home Missions in the M. E. Church and the General Agencies of the Y.M.C.A. The Federal Council of the Churches of Christ has two major projects: A study of representative Negro communities, and another of the relation of Church and State in the United States. The Institute of Social and Religious Research reports 13 projects mainly in the nature of regional and group studies and studies of social change. The Committee on Farm and Village Housing (Bruce L. Melvin, secretary) of the President's Conference on Home Building and Home Ownership has completed its research report. A continuing committee on Pressure Group and Propaganda Research has been appointed by the Social Science Research Council. Harold D. Lasswell (Chicago) is chairman.

Types of Research.—It is not possible to secure a complete summary of sociological research, but the following analysis of 254 research projects reported, exclusive student theses, affords a representative notion of the chief research activities outside as well as inside the universities, and of the organizations carrying on this research.

Rural Research.—Research in the rural field still leads, because of the large amount of government funds available for this purpose. Table No. I indicates the distribution of the 90 rural studies reported.

Human Ecology.—Ecological studies appear to be next most popular

among the sociologists. The University of Pennsylvania reported 20 such studies in progress, and the Universities of Chicago, Michigan, Washington, Wisconsin, and Washington University each reported one, making a total of 25.

Crime and Delinquency Studies.—Next in number of the research undertakings reported were those dealing with crime and delinquency, a total of 23 being reported. Six investigations of the causes and prevention of juvenile delinquency were made at the Universities of Chicago, Kansas, Nebraska, Vanderbilt, and Washington and at the Smith College School of Social Work. Four studies of the administration of criminal justice were undertaken at Johns Hopkins, Miami and Ohio State Universities and by the Federal Government. At Chicago, studies were made of burglaries, embezzlers, case histories of criminals, probation prediction, professional thieves, regional criminality, the reliability of criminal statistics, punishment. W. G. Beach (Stanford University) completed a study of Oriental crime in California. Poverty and delinquency were studied at Illinois. And an investigation of the child clinic records of criminals was made at the Smith College School of Social Work. At Wisconsin studies in prison systems and the social backgrounds of prisoners were made.

Domestic Relations Studies.—Thirteen studies of marriage and home relations were reported as follows: marriage, 3 studies at the University of Pennsylvania; marriage and divorce at Johns Hopkins, Miami and Wisconsin Universities; success in marriage at Chicago and Washington Universities; marital conflict at Chicago; family relations scales at Chicago and Washington Universities; activities of women outside the home at Chicago; and childhood problems by the General Education Board.

EDUCATIONAL ACTIVITIES

Student Enrollment.—The depression appears to have produced an increased interest in sociology, at least in certain quarters. The University

of Nebraska reports a ten per cent increase in enrollment and Washington University an 85 per cent increase.

Departmental Staffs.—On the other hand, departmental staffs have, for the most part, decreased in size, sometimes as much as 50 per cent, as at Baylor and Texas Christian Universities. The University of Pennsylvania reports a temporary decrease in staff of two professors, one assistant professor, and one instructor. The leave of absence has been much in use.

New Appointments.—New appointments have been few, even of the rank of instructor, and most of these have been temporary. Stuart A. Queen was added to the staff at Washington University. A. Z. Mann left Northwestern for Springfield Y. M.C.A. College. Stuart A. Rice is teaching (1932-1933) at the University of Chicago. R. C. Thurnwald was visiting professor at Yale and Harvard Universities (1931-32). R. E. Park was lecturer at Yenching University, Peiping, China. E. W. Burgess is acting chairman (1932-33) of the department of sociology at Chicago and J. A. Quinn was made chairman of the Social Science Faculties at Cincinnati. F. J. Bruno was elected president of the National Conference of Social Work (1932-1933).

Relations with Social Work.—At Ohio State University sociology and social work were separated administratively with the retirement from administrative duties of Dean J. E. Hagerty. F. E. Lumley became chairman of sociology and C. C. Stillman director of the School of Social Administration. In four other institutions sociology and social work have been more closely integrated. At Washington University this step has been taken unofficially, but with official approval. The Graduate School for Jewish Social Work, which has recently obtained the privilege of granting the doctor's degree, states that it "is the only graduate school in the country, so far as my knowledge goes, which aims to base its work on a background of social science

with emphasis on sociology (Karpf)." At Pittsburgh graduate work in sociology and social work are united under one management, with 50 fellowships at its disposal. At the University of Buffalo a social work curriculum has been established within the department of sociology.

Experiment in Interdepartmental Comity.—At the University of Michigan a joint seminar in the social sciences has been established and a number of graduate students (12 Earhart Foundation fellowships and 30 scholarships are available) are at work on a fundamental analysis of the Detroit area. Six of the fellows are working in the department of sociology and the remainder in the other social sciences, but all are under joint direction.

PUBLIC RELATIONS

Professors' Activities.—Reports for 99 professors in 32 educational institutions showed that they are active in 174 outside non-devotional organizations of local or national and international scope, including international and national and local commissions and committees. Some were governmental advisors, other advisors of foundations, and a few were presidents of, or directors in local associations. Thus, on an average, the professor seems to be actively identified with approximately two public organizations in addition to the educational institution which he serves.

Departmental Contacts with the Public.—Several departments of sociology had organized public service functions. At the University of Akron the department of sociology has an Institute for Leisure Time, "which has for its purpose the organization and administration of social programs functioning through the public and civic agencies." The department at Kansas has inaugurated a Field Service for Social Welfare which has as its aim "studies of Kansas communities and practical assistance in the solution of community problems." A similar work is done at Wisconsin. At Texas Christian the department has sponsored the organization of an open

forum under the auspices of the Y. M. C. A. which apparently discusses public questions with a freedom that is not encouraged in some other institutions.

Studying Russia.—Professor Jerome Davis (Yale) organized a group of social scientists, including the sociologists George Douglass (Hood College), J. L. Gillin (Wisconsin), Susan M. Kingsbury (Bryn Mawr), and N. L. Sims (Oberlin), who made a trip to Russia in the summer of 1932. Each member of the party investigated a chosen aspect of the culture and problems of that country. Their studies were published in a volume entitled *The Soviet Union between the Two Five Year Plans*.

PUBLICATIONS

General.—The *Zeitschrift für Völkerpsychologie* was made international by its editor, R. C. Thurnwald, and began to appear with both English and German language articles under the new title of *Sociologus* early in the year. The publisher is still C. L. Hirschfeld, Leipzig. Robert C. Angell and L. J. Carr (Michigan) have initiated a monograph series in sociology to be photo-lithographed on terms within the financial reach of sociologists desiring publication. Dean Joseph Husselsin (St. Louis University) edited eighteen and published nine volumes in his Science and Culture Series in 1932. This series attempts to make known the leading contributions of modern Catholic social thought.

Subjects.—Books on criminology and delinquency led the sociological list in 1932, including W. G. Beach's *Oriental Crime in California*, H. C. Brearley's *Homicide in the United States*, N. F. Cantor's *Crime, Criminals, and Criminal Justice*, Mabel Elliott's *Conflicting Penal Theories*, W. C. Reckless and M. Smith's *Juvenile Delinquency*, and L. N. Robinson's *Should Prisoners Work?* Social problems was a close competitor and included L. G. Brown's *Immigration*, M. C. Elmer's *Family Adjustment and Social Change*, J. P. Lichtenberger's *Divorce: A Social Interpretation*,

G. B. Mangold's *Social Pathology*, E. R. Mowrer's *The Family*, and C. C. North's *Social Problems and Social Planning*. Closely related were social work books written from the sociological viewpoint, such as J. E. Hagerty's *Training of the Social Worker*, M. J. Karpf's *The Scientific Basis of Social Work*, John O'Grady's *Catholic Charities in the United States*, and R. S. Wilson's *Community Planning for Homeless Men*.

Rural Field.—Publication in the rural field outstripped that in the urban. The third and final volume of Galpin, Sorokin and Zimmerman's monumental *Systematic Sourcebook in Rural Sociology* appeared. Albert Blumenthal published *Small Town Stuff*. Wilson Gee's *The Social Economics of Agriculture*, R. H. Holmes' *Rural Sociology* and E. D. Sanderson's *The Rural Community* complete the rural list. M. R. Davie's *Problems of City Life* and Pauline V. Young's *The Pilgrims of Russian Town* were able contributions to urban sociology. R. E. Chad-dock's *Population of New York City, 1890-1930* and Claude Robinson's *Straw Votes, a Study in Political Prediction* were contributions to demographic analysis. In the field of social control five books by sociologists call for mention: W. G. Beach's *Social Aims in a Changing World*; *Prohibition—A National Experiment*, edited by J. H. S. Bossard and Thorsten Sellin; Paul G. Cressey's *The Taxi Dance Hall*; J. H. Landman's *Human Sterilization*; and H. N. Shenton's *Cosmopolitan Conversation*.

Social Theory.—Three outstanding books in social theory were E. E. Eubank's *Concepts of Sociology*, Fay B. Karpf's *American Social Psychology*, and Leopold von Wiese's *Systematic Sociology*, reworked and done into English by Howard Becker. R. C. Thurnwald's *Economics in Primitive Communities* was also outstanding. Wilson Gee's *Research Barriers in the South* gives a new and important perspective on that field.

Text Books.—Introductory college texts in sociology are still coming strong, the year's crop being G. R. Davies and J. M. Reinhardt's *Princi-*

ANTHROPOLOGY AND ETHNOLOGY

ples and Methods of Sociology, C. A. Ellwood's *Social Problems—A Sociology*, F. H. Giddings' *Civilization and Sociology* (completed by H. W. Odum), A. G. Keller's *Man's Rough Road*, and E. J. Ross's *A Survey of Sociology*. Texts in educational so-

ciology were almost as numerous and included J. A. Kinneman's *Society and Education*, D. H. Kulp's *Educational Sociology*, E. George Payne's *Readings in Educational Sociology*, and Willard Waller's *The Sociology of Teaching*.

ANTHROPOLOGY AND ETHNOLOGY

BY CHARLOTTE D. GOWER

ASSISTANT PROFESSOR, UNIVERSITY OF WISCONSIN

GENERAL

Utilization of Motion Pictures.—

The first attempt to use the latest improvements in moving pictures for the study of primitive peoples was made by the Latin-American Expedition directed by Donald C. Beatty. Dr. Matthew W. Stirling, chief of the Bureau of American Ethnology, was director of the scientific work of the expedition. They visited the Jivaro Indians, head hunters of Ecuador.

Acculturation.—The problem of acculturation continues to occupy ethnologists. Dr. Asael Hanson is engaged in an ethnological-sociological study of Merida, Yucatan, under the auspices of the Carnegie Foundation. The Social Science Research Council awarded a research fellowship to H. Scudder Mekeel for work on the psychological and sociological aspects of culture change. M. E. Opler is to study the present-day culture of the Apache Indians on a similar grant. A third Social Science Research Council Fellowship was awarded to Hortense Powdermaker to make possible a functional study of the Negro family. Other projects emphasizing the functional rather than the historical aspects of culture have been carried on by a number of students in various Indian tribes.

ARCHEOLOGY IN AMERICA

Antiquity of Man.—The evidence that man existed in America contemporaneously with a number of extinct forms of animal life continues to accumulate. Finds of arrow points with the bones of the mammoth,

camel, and extinct bison have been reported from Florida, Nebraska, and New Mexico during the past year, adding to the already considerable number of authenticated finds of this sort. At two sites in Nebraska the points were found at a depth of sixteen feet, under loess. In New Mexico, the point was discovered at the depth of seven feet in a cave. Thus there is geological as well as paleontological evidence of the antiquity of the finds. In Minnesota the skeleton of a young man was discovered in the bed of an extinct lake in Otter-tail county. It lay at a depth of twelve feet in carved silt of glacial age. In physical type the individual resembled the Eskimo.

Kodiak Island.—Dr. Ales Hrdlicka, of the U. S. National Museum, excavating an old Eskimo village deposit at Larsen's Bay, Kodiak Island, discovered at a depth of nine feet indications that the earliest inhabitants of the site had not been Eskimos but of a type resembling the modern Indians of California. These people seem to have had a fairly high culture, with slate knives, lamps ground out of granite and basalt, and naturalistic carvings in ivory. The region also abounded in petroglyphs. On nearby islets Dr. Hrdlicka discovered a number of ancient fortresses admirably situated for defense.

Alaska.—On the Alaskan mainland an expedition from the University of Pennsylvania discovered at Cook Inlet the remains of Eskimo settlements in a region now inhabited by Indians. The local Indians know nothing about

the Eskimo settlements, and have no traditions of anyone but themselves occupying the region. Their villages are comparatively recent.

Southwest.—Considerable progress has been made in the dating of ruins by the use of the Douglass tree-ring method. A log from the Chetro Ketl pueblo in the Chaco Canyon, New Mexico, extends the tree-ring record for the Southwest back to the year 643 A.D. This represents the date of beginning of growth. The earliest building date, 743 A.D., based on the time the tree was cut, is found in a burned pueblo pit house excavated near Flagstaff, Ariz., by the Museum of Arizona. Previously Pueblo Bonito was the oldest known, dating from 919 A.D. Other ancient settlements reported in the past year are Una Vida, near Pueblo Bonito, excavated by Paul Reuter of the New Mexico Museum, and a pueblo near Allentown, Ariz. excavated for the Bureau of American Ethnology by Dr. Frank H. H. Roberts. The former dates from 861 and the latter from 797 A.D.

Mexico.—Two new Maya cities were discovered by C. L. Lundell, botanist for the American Chiclé Development Company. The first, Calakmul, in the southern part of Campeche, was subsequently visited by an expedition headed by Dr. Sylvanus Morley of the Carnegie Institution of Washington. This city seems to have been a great religious center and contains many stone monuments which will be of great importance for the study of early Maya history. Calakmul flourished in the fifth, sixth, and seventh centuries after Christ. The second city discovered by Mr. Lundell is called Nohoxna. It lies in Peten, about half way between Calakmul and Uaxactun, where a Carnegie Institution expedition is now working.

Excavations conducted by Eduardo Martinez Canton at Chichen Itza have revealed that the Castillo was built over and around another older pyramid. Under the main stairway of the Castillo was found a tomb containing objects of great interest and value, among them a plaque made of

jade and turquoise. Some of the articles seem to be equipment for divination. Many valuable objects of gold, silver, jade, coral, turquoise, and other materials were found in a series of Mixtec burials opened by Don Alfonso Caso of the National Museum of Mexico. Apart from the richness of the find, this is a discovery of considerable scientific importance, for the site, Monte Alban, near Oaxaca in southern Mexico, has been regarded as a Zapotec city. The Mixtec warriors may have been intruders. Moreover, many of the carvings are Mayan in character. Among the objects were human bones with beautifully carved designs, and a skull incrustated with turquoise and shell. The city shows evidences of having been rebuilt or enlarged at three different times.

Another treasure tomb was discovered by an Indian farmer at Texmelincan, 120 miles south of Mexico City in the state of Guerrero. Here the objects seem to be Toltec. A large dish of beaten gold shows the plumed serpent design. Human crania lined with gold leaf are among the objects of special interest. The Aztec city of Calixtlahuaca was the site of excavations carried on by José Garcia Payon for the Department of Archeology of the State of Mexico. Twenty-three public buildings have been located in this city which once had an area of sixteen square miles. In the temple of Quetzalcoatl Sr. Payon has identified five distinct periods of construction.

Inca.—A survey was made of the Bolivian plateau in the vicinity of Lake Titicaca by the American Museum of Natural History expedition under the direction of Dr. Wendell Bennett. With the aid of the Bolivian Army Air Force part of the exploration was done from the air. Forty-three settlements of the late Inca era were located. In one of them a number of intact Inca houses were found.

PALESTINE

Mousterian Man.—The investigations carried on under the auspices of the American School of Prehis-

toric Research and the British School of Archeology at Jerusalem have made substantial contributions to our knowledge of the earliest inhabitants of Palestine. In the Cave of the Kids, at the foot of Mount Carmel near Haifa, Theodore D. McCown discovered nine skeletons in a level containing artefacts of Mousterian type. This is the third find of Mousterian man in Palestine, and by far the most important since one of the earlier finds was extremely fragmentary, and the other was an immature individual. These skeletons bear marked resemblances to Neanderthal man who had a similar culture in Europe. Their brow ridges were massive, and the pulp cavities of their molar teeth were large. However, they lack the characteristic depressed occipital region of the typical Neanderthal specimen, and show better development in the frontal and parietal regions of the skull. They also show a developed chin. Sir Arthur Keith points out certain negroid characteristics in the face, while the skeleton is Australoid in type.

Late Pleistocene Population.—Working under the same auspices as Mr. McCown, other expeditions under the direction of Dorothy Garrod have found evidences of a late Pleistocene population who inhabited the hills of Judea and the Mount Carmel region. Like their predecessors they lived in caves, but they were quite different in physical type, bearing resemblances to the pre-dynastic Egyptians, the New Stone Age peoples of the Altai, and the negroids of the Grimaldi caves. They practiced cannibalism, the extraction of the upper medial incisors, and secondary burial by cremation.

MESOPOTAMIA

Nineveh.—The feature of the season's work at Nineveh, where R. Campbell Thompson is in charge of the British Museum expedition, was the excavation of a test pit extending 90 feet down to virgin soil. Seven occupational levels were recognized: five prehistoric and two, the Mediaeval and Assyrian, historic. The most recent of the prehistoric periods was

contemporaneous with the royal cemetery at Ur (3,000 B.C.). The fourth prehistoric level contains the first traces of the wheel, and the third shows the beginning of the use of metals at this site. During the first two prehistoric periods the culture was neolithic. A sterile layer representing a pluvial period separates these stone age cultures from the later ones. This flood is supposed to have occurred between 4500 and 4000 B.C.

Tepe Gawra.—In northern Mesopotamia the researches of the joint expedition of the University of Pennsylvania Museum and the American School of Oriental Research have shown the Tepe Gawra site to be extremely ancient. Eight occupational layers have been found, of which the sixth is contemporaneous with the royal tombs at Ur. The lowest level represents a city some 500 years earlier in date. This town shows evidence of orderly arrangement, with a citadel, market-place, and reservoir for water. Here may be observed the earliest appearance of the true arch in architecture.

Nuzi.—Excavations conducted by the Semitic and Fogg Museums of Harvard University at Nuzi, 200 miles north of Babylon, have brought to light a map inscribed on a baked clay tablet with place names written in Sumerian characters. It dates from 2500 B.C.

Khafagi.—At Khafagi, in Iraq, P. Delougaz of the Oriental Institute of the University of Chicago, has excavated houses and temples dating from 3000 B.C. Here were found votive plaques identical with those offered at Ur during the same period. A number of carved heads show several racial types, indicating a mixed population. Other carving show horses hitched to chariots.

Tell Asmar.—Another expedition from the Oriental Institute under the direction of Dr. Henry Frankfort found potsherds, stamp seals, beads, and bone inlays, all of Indus valley types. The most striking object was a cylinder seal carved with the figures of elephants, rhinoceri, and crocodiles, animals which are not indigenous to

Mesopotamia. The level at which these objects were found may be dated rather precisely about 2600 B.C. Their Indus valley parallels usually occur in the top levels at Mohenjo-daro.

Ur of the Chaldees.—Further evidence for the correlation of the Indus Valley and Mesopotamian cultures has been discovered at Ur where C. Leonard Woolley is in charge of a joint expedition of the British Museum and the Museum of the University of Pennsylvania. In deposits dating from the second dynasty at Ur (2800 B.C.) was found a seal carved with the figure of a bull and some Indus Valley script.

AFRICA

Tanganyika.—Accompanied by Dr. Hans Reck, an expedition headed by Dr. L. S. B. Leakey visited the Oldoway site in western Tanganyika. Implements of Chellean type were discovered in the early Pleistocene levels from which Dr. Reck in 1913 had taken the skeleton of a man of modern type. In still lower strata Pre-Chellean artefacts were discovered, while higher layers showed later cultures. The oldoway site thus furnished a valuable stratigraphic record of the prehistory of the region. However, laboratory examination of the skeleton seems to have demonstrated that it is by no means as old as the deposit in which it was found, but was introduced into that level at some later and undetermined date.

Algeria.—Fifty skeletons of the "Meehta" type were found in the cave of Afalou bou Rhummel in Algeria. MM. Marcellin Boule and Henri Vallois, who have studied the remains, describe them as short, stocky people

with long or medium heads and brutal faces with heavy eye-brow ridges. The deposit was of late Pleistocene date and contained implements of the Caspian type.

Western Sudan.—The fossilized skeleton of a tall, large-brained individual was found in late Pleistocene deposits near Asselar in the Western Sudan. MM. Boule and Vaillant think it possible that this is the link between the Boskop type of South Africa and the Cro-Magnon men of Europe. No implements accompanied the find, but there were definite evidences that Asselar man lived in a time when the Sahara was a fertile region.

PEIPING MAN

Further excavations at Chou Kou Tien have produced definite evidence that *Sinanthropus pekinensis* not only knew the use of fire, but also made chipped implements of stone. There are also evidences of the utilization of bone and horn. Additions to the skeletal finds appeared in the form of small bones from the wrist and foot. The former are definitely human in character, but there seems to be evidence that the foot differed somewhat from the modern human foot.

JAVA

At Ngandong on the Solo river W. F. F. Oppenoorth and C. Ter Haar discovered a new type of man lying in Pleistocene deposits. The skull shows a low vault and heavy brow-ridges, justifying a comparison with the Neanderthal man of Europe. The occipital region, however, is not depressed. Anatomists tend to see in this new find another species of the genus *Homo*, and have named it *Homo soloensis*.

MENTAL TESTS

BY MARTIN L. REYMERT

DIRECTOR, THE MOOSEHEART LABORATORY FOR CHILD RESEARCH

USE OF TESTS

The widespread use of mental tests in colleges, schools, and clinics has continued during the present year.

The mental test is well established as part of the basic procedure in making a study of a child or adult for the purpose of making sugges-

MENTAL TESTS

tions for his education, training, or guidance. Various reports of the use of tests in testing programs and in mental test surveys in colleges and in elementary and secondary schools have been made. For example, L. L. Thurstone and T. G. Thurstone report the use of 165,341 copies of the American Council on Education Psychological Examination in 377 colleges. H. A. Toops reports the use of 49,681 copies of the O. S. U. Psychological Examination in high schools.

NEW TESTS

In the pre-school field, the outstanding test developed is the Minnesota Pre-school Scale of which there are two forms. In addition to this scale, the items of Gesell's Developmental Schedule have been scaled by Steckel. In the general field of new tests, there should be mentioned the Carnegie Mental Ability tests, the Henmon-Nelson Tests of Mental Ability, and the Pintner Intelligence Tests. Wells has revised the Old Army Alpha. Kent has developed an oral test for emergency use in clinics. Greene has completed the Michigan Non-verbal Series and the Michigan Speed of Reading Test. Sargeant has adapted the Otis Classification Test for use with blind children. The Minnesota Educational Test Bureau reports the availability of a new set of achievement tests,—Unit Scales of Attainment.

For the various special mental traits, tests have been developed for emotional maturity, persistence, personal values, introversion-extroversion, attitudes, and cruelty-compassion. Pressey reports the revision of the X-O examination in the form of interest-attitude tests. Personality and character tests are listed in the *Tenth Year Book of the N. E. A.*, Department of Superintendence. Mallers' character sketches have also been published.

CONTRIBUTIONS TO METHOD AND TECHNIQUE

Goodness of Tests.—Studies have been made of various tests during

the year to determine their validity, reliability, and other aspects. Furfey and Muehlenbein studied the Linfert-Hierholzer Infant Intelligence Scale and found that results from it do not predict Stanford-Binet scores four years later. They question also the validity of other similar tests. Phillips made an analytical study of the Binet-Simon test responses of 1,306 children and found that for the group tested some of the tests at a higher age level were easier than those located at a lower age level. Brigham has completed his study of the validities of the various items in the College Entrance Examination Board of Scholastic Aptitude tests. Drake reported that the Pressey X-O test and an interest test were of practically no value for predicting success in college. Hendrickson & Huskey found a slight predictive value for achievement and intelligence in a measure of introversion.

Stability.—Hallowell studied the stability of the mental test rating for pre-school children. Bird and Lincoln found a relatively high reliability for the Dearborn general examination. Miles reports that the Otis self-administering test can be satisfactorily used as a 15 minute test. Holladay after comparing the Henman-Nelson tests with three others recommends them for accurate placement of pupils, ease of administering and scoring, and general construction, the tests being of the omnibus type.

Reliability.—Slaght studied the reliability of a self-rating scale and found that after an interval of about two years the changes in average score on most of the items were negligible. Strang concluded that whereas the abilities tested in the George Washington social intelligence tests might be factors in social intelligence, the various items seem to have little relationship to the overt socialability of the individual.

Principles of Testing.—A number of articles have come out on the use and applications of tests. Several

books describing the use of mental tests have been published; for example, Webb and Shotwell have written a book on the use of standard tests in the elementary school. Blackhurst has written a chapter on the meaning of educational and mental tests. Mort and Gates have published a manual on tests.

Technical and Theoretical Aspects.

—Other contributions to the more technical and theoretical aspects of testing intelligence have also been made. Horst reports a routine procedure for obtaining comparable scores. Humm has presented a chart for more convenient calculation of intelligence quotients. Stagner reports a short-cut method for scoring weighted item tests. Toops reports a new method of scoring tests rapidly with the aid of a printing press. Camp emphasizes the need for using general clinical material in addition to psychometric tests in diagnosis. Constance reports that the scholastic grades given by instructors are influenced by knowledge of student scores on a previous test of mental ability.

Principles of Test Construction.

Various principles of test construction have been set forth. Whereas heretofore tests have been constructed largely according to the authors' theories and principles, more attention is now being paid to the selection of items in a test by use of whatever objective criteria may be available. Some of the work pertains to the more technical aspects of scoring, scaling, adjusting for difficulty, and determining norms and standards. Harvey suggests that in addition to Thurstone's criterion of "discriminative" value in selecting the best items, the frequency of occurrence of the significant response must also be used. P. Cattell reports that there is a constant difference between Binet I. Q. and Otis Self-Administering I. Q. Fryer compared methods of validating measures of interest and discussed the measurement of interest in relation to human adjustment. Hartson has discussed the validation of rating scales used with candidates for admission to Oberlin College. Jaffa

suggests that tests for pre-school children must take account of the fact that attention must be spontaneous and activities self-initiated. He has constructed tests in accordance with these principles.

Measuring Opinion and Attitudes.

—In regard to some of the special traits Droba reviewed five methods for measuring opinion and various methods for measuring attitudes. May has discussed various problems of measuring character and personality. Thurstone has reported on the measurement of change in social attitude as a result of movies and other influences.

STUDY OF PROBLEMS INVOLVING MENTAL TESTS

Mental Growth and Constancy of

I. Q.—Small progress seems to have been made toward the solution of the problem of the curve of growth of intelligence. Wright found that in tests of "fundamental abilities" given to college students aged 18-23, there was no indication of a plateau stage between these years. P. Cattell found that the Stanford-Binet tests repeated within a period of three or four months resulted in a median gain of four or five points in the second I. Q. Lincoln & Wadleigh found that on group intelligence tests given in grades 3, 4, and 6, 36.9 per cent showed a change in I. Q. of 10 points or more. Nemzek found that the correlation between consecutive tests on the Herring-Binet separated by a one year interval was .73 for 52 gifted children.

Environmental Influences on Intel-

ligence.—Evidence seems to be accumulating that environmental factors have considerable influence on intelligence ratings. Freeman in a radio address reviewed some of the evidence supporting this conclusion. He mentions the evidence from his foster-home children study in which intelligence ratings were found to correspond with the quality of the home. He also mentions studies of canal boat children who seem to fall lower in I. Q. ratings as they grow older, and South Highlander chil-

dren who fall farther and farther below in intelligence during school years. He further mentions the study of fraternal twins and identical twins. Fraternal twins with similar home surroundings have been found to grow more alike than identical twins with different home surroundings. Wellman reports that in a study of repeated Binet tests a considerable gain of I. Q. was made, the greatest gain being made by the below average group. The gain was greatest during months when the children were in school and, in general, gains tended to be larger with larger amounts of schooling. Lowry found that 50 elementary school children after a three months' program of intensive training in reading increased their I. Q.'s an average of 11.76 points. Jones, Conrad and Blanchard found that rural environment is a handicap in the Stanford-Binet examination and they infer that "a rural child moving to the city would increase his intelligence test scores merely as a result of changed environmental conditions." Pintner found that a non-English group made a relatively better score on the Pintner non-Language test than on the Pintner-Cunningham test. Snedden found a practice effect when a test was repeated after a week interval. This practice effect was less when another form of the same test was given and still smaller when an entirely different test was given. Steiner finds a considerable variation in the average mental ability of children entering the first grade over a 10-year period. Thurstone has made a number of studies showing that children's attitudes can be influenced by means of motion pictures.

Relations Among Mental Traits.—Rust has studied the effect of resistance on the intelligence test scores of young children and found a relationship between resistance score and difficulty of the test. About one-half of the Kuhlmann and three-fourths of the Merrill-Palmer tests refused by the children were later passed. Gates and Scott found low correlations between scores on motor tests

and Stanford-Binet mental age. Carroll & Eurich found that abstract intelligence has little if any relationship with critical ability in art on the college level, but that gifted children are superior to borderline children in art judgment ability. Toops and Rinenour studied the combined effect difficulty and intelligence on college scholarship by a special method without satisfactory results. Nelson studied the relationships among personality and intelligence factors and found few significant correlations but an indication that the traits associated with higher intelligence were low resistance, high persistence, high conversation, high activity, high initiative, and high alternative use of test materials. Miles, C. C. & Miles, W. R. report a study on the correlation of intelligence scores and chronological age from early to late maturity. In the first period of life (7 to 18 years) mental growth is still continuing. In the second period (3rd to 5th decade) the curve remains constant throughout the twenties, dropping 7 months of mental age in the thirties, 1 month in the forties, and 11 months in the fifties. In the third period (6th to 9th decade) a marked drop occurs, 11 months in the sixties, 12 months in the seventies, 9 months in the eighties, and 28 months in the nineties. Greene has studied the relation of a rational learning test to other tests and finds that it correlates highest with intelligence tests. Davis finds that performance on the Knox Cube Test is not positively correlated with high digit span.

Use of Tests for Studying Special Groups.—As an approach to the study of effect of nationality, language, and other factors on intelligence, special groups have been tested. Armstrong reports that children of immigrants are inferior in language or verbal ability to children of American parentage whether rural or urban. Haven found that the effort of children of foreign-born parents seems to be higher than that of native children. Beck has studied the Rorschach test as applied to feeble-minded and problem children.

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He reports that certain of the responses are diagnostic of emotional stability, others of intellectual ability. He suggests it may be a possible diagnostic measure of the personality as a whole. Groff has made a study of the vocabularies of deaf children.

Factor Theory.—Work on the highly theoretical problem of determining factors in a set of tests has continued. Thurstone has proposed a new method for determining factors and has applied it in discovering the factors underlying the various scores on Strong's vocational interest blank. Other contributions to the theory have also been made. Arguments both for and against Spearman's two factor theory have been presented.

Rating Scales.—Conrad maintains that the effect of the personal equa-

tion in making ratings is negligible. Carroll reports that training improves objective ratings by increasing agreement among raters. Bradshaw suggests some improvements for rating techniques, such as inclusion in the scale of space for significant instances of behavior which illustrate the trait being rated. Many contributions of the theory of psychometric measurements and to the analysis of mental test problems have been made. Some professional articles have appeared. Several reviews of the literature of previous years have been published. Pintner has presented a summary of the work done on intelligence tests. Watson has reviewed the work on character and personality, and another review of tests on character and personality appeared in the *Review of Educational Research*.

DIVISION XXIV

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

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| AMERICAN ANTHROPOLOGICAL SOCIETY, 45 West 45th Street, New York City. | AMERICAN SOCIETY FOR PSYCHICAL RESEARCH, 15 Lexington Ave., New York City. |
| AMERICAN GENETIC ASSN., 306 Victor Bldg., Washington, D. C. | AMERICAN SOCIOLOGICAL SOCIETY, 58th St. and Ellis Ave., Chicago, Ill. |
| AMERICAN PHILOSOPHICAL SOCIETY, 104 S. 5th St., Philadelphia, Pa. | ENCYCLOPEDIA OF THE SOCIAL SCIENCES, 100 Morningside Drive, New York City. |
| AMERICAN PSYCHIATRIC ASSN., Albany, N. Y. | NATIONAL COMMITTEE FOR MENTAL HYGIENE, 370 Seventh Ave., New York City. |
| AMERICAN PSYCHOLOGICAL ASSN. | PSYCHOLOGICAL CORPORATION, 25 W. 39th St., New York City. |
| AMERICAN PSYCHOPATHOLOGICAL ASSN., 520 Commonwealth Ave., Boston, Mass. | |
| AMERICAN SOCIAL SCIENCE ASSN., 280 Madison Ave., New York City. | |

PART SEVEN

THE HUMANITIES

DIVISION XXV

LITERATURE AND LANGUAGE

HISTORY

BY PAUL H. BUCK

INSTRUCTOR, HARVARD UNIVERSITY

RESEARCH

Group Cooperation.—The year in American historiography is significant in the amount of attention given to problems of research methods and the possibilities of directed cooperation among organized groups. The American Historical Association, aided by the Social Science Research Council and the American Council of Learned Societies, brought forth an intelligently prepared report on *Historical Scholarship in America* (Long and Smith), A. M. Schlesinger, chairman, which penetrates to the core the needs and opportunities confronting the historical scholar in this country. It seems certain that this report, the result of group meetings in various parts of the United States dealing with the major fields of history, will be an influence for good.

Carnegie Institution.—The Department of Historical Research of the Carnegie Institution continued its well directed efforts to unearth source materials in the United States and Europe (see the Institution's *Year Book*).

Library of Congress.—Two phases of the activity of the Library of Congress merit special comment; Dr. J. F. Jameson's work in the division of

manuscripts as well as his general assistance to researchers in the Library, and Dr. W. C. Ford's enterprise in directing the photographing and copying for the Library source material on American history in European archives. Both are described in the *Report of the Librarian of Congress* (Wash., 1932).

HISTORICAL GEOGRAPHY

The most noteworthy contribution of the year, possibly the most significant event in a decade of American historiography, was the result of co-operative effort. *The Atlas of Historical Geography of the United States* appeared after twenty years of planning and research under the joint auspices of the Carnegie Institution of Washington and the American Geographical Society of New York. Many hands had a share in its preparation. The work was originally the ideal of Dr. J. F. Jameson. It owes much to the inspiration of the late F. J. Turner. The actual labor of preparation was entrusted to C. O. Paulin. The completed work was edited by J. K. Wright. The *Atlas* is a remarkable monument testifying to the interrelation of history and geography in the development of the United States.

GENERAL HISTORIES

General histories appearing during the past year were few and for the most part restricted in size or scope. Most important by far were the three volumes added to the *Encyclopaedia of the Social Sciences*, E. R. A. Seligman, editor-in-chief, (vols. 7, 8 and 9, covering Gossen through Materialism: Macmillan). J. T. Adams, *The March of Democracy* (Scribner), is a popular outline narrative of American history to 1860, a rather thin performance for a scholar of Mr. Adams' standing. L. M. Hacker and B. B. Kendrick, *The United States since 1865* (Crofts), is a detailed factual manual, vigorous in style, challenging in interpretation and useful for reference. E. C. Kirkland, *A History of American Economic Life* (Crofts), is an able synthesis with considerable independence of presentation. J. H. Denison, *Emotional Currents in American History* (Scribner), is a bold venture in a new field which would have been improved by greater knowledge. Mark Sullivan, in the style he himself created, added a volume, the fourth, to his *History of Our Times. The War Begins* (Scribner) will permit many readers to reminisce with Mr. Sullivan over the excitements of yesterday.

SOCIAL HISTORY

In contrast to the opportunities before them, it cannot be said that the social historians showed especial vigor during the past year. In the absence of any additional volumes to the *History of American Life*, A. M. Schlesinger and D. R. Fox, eds., (Macmillan—in preparation), the field was left to scattered monographs. Four essays, with considerable range in merit, by T. Sizer, A. C. McLaughlin, D. R. Fox, and H. S. Canby were published under the title, *Aspects of the Social History of the United States* (Univ. of North Carolina). G. Vander Velde, *The Presbyterian Churches and the Federal Union, 1861-1869* (Harvard), is an excellent monograph which cuts clearly, intelligently and fairly through a thicket of contentious confusion. P. Guilday, *History of the Councils of Baltimore, 1791-1884* (Macmillan) adds to the understand-

ing of Catholicism in the United States. G. M. Stephenson, *The Religious Aspect of Swedish Immigration* (Univ. of Minnesota), is a substantial study of the role played by immigrant churches. W. F. Adams, *Ireland and the Irish Emigration to the New World from 1815 to the Famine* (Yale), is a detailed account of the background of the great Irish migration. F. R. Packard, *History of Medicine in the United States*, 2 vols. (Hoeber), is a thorough rewriting of the author's earlier history of the subject. W. B. Blanton, *Medicine in Virginia in the Eighteenth Century* (Garrett and Massie), is evidence of the need of monographic studies in the history of medicine. H. Manchester, *Four Centuries of Sport in America* (Derrydale), a beautiful book, is panorama rather than history. R. D. James, *Old Drury of Philadelphia* (Univ. of Penn.), is restricted to the Philadelphia stage from 1800 to 1835. C. F. Price, *Wesleyan's First Century* (Wesleyan), is an account of the university's development. A. Bimba, *The Molly Maguires* (International Publishers), a reworking of an old story, was the only book to appear in the labor field.

RACIAL HISTORY

The Indian.—In race relations considerable activity was to be found in studies of the Indian. J. C. Wise, *The Red Man in the New World Drama* (Roberts), is a very general survey. R. S. Walker, *Torchlights to the Cherokees, The Brainerd Mission* (Macmillan), is the history of an early venture in Indian education. O. F. Frederikson, *The Liquor Question among the Indian Tribes in Kansas, 1804-1881* (Univ. of Kansas), is an adequate monographic study. G. Foreman, *Indian Removal* (Univ. of Okla.), an account of the forced migration of the Creeks, Cherokees, Chickasaws, Choctaws and Seminoles, is one of best recent contributions to Indian history. J. J. Mathews, *Wah'Kon-Tah* (Univ. of Okla.), is a fresh interpretation by an Indian of the Osage tribe. R. R. Arnold, *Indian Wars of Idaho* (Caxton: Caldwell, Ida.), deals with a restricted area.

HISTORY

The Negro.—On negro history, P. Lewinson, *Race, Class and Party, a History of Negro Suffrage and White Politics in the South* (Oxford), is best on the later period.

WESTERN HISTORY

Most of the work on Western history dealt with picturesque phases of frontier development. Some of the writing was vivid but it added little to existing knowledge of the subject. Books that should be mentioned are: G. B. Glasscock, *Gold in Them Hills* (Bobbs-Merrill), the mining frontier of the Southwest in the early 1900s; F. C. Lockwood, *Pioneer Days in Arizona* (Macmillan); J. G. McCoy, *Historic Sketches of the Cattle Trade of the West and Southwest* (Rare Books Shop: Washington, D. C.); E. LaM. Waldo, *Dakota, an Informal Study of Territorial Days* (Capital: Bismarck, N. D.); W. G. B. Carson, *The Theater of the Frontier* (Univ. of Chicago), restricted to the drama in St. Louis from 1815 to 1839; A. Chapman, *The Pony Express* (Putnam); and J. B. Brown, *Fort Hall on the Oregon Trail* (Caxton: Caldwell, Ida.).

INTELLECTUAL AND POLITICAL

In intellectual history, J. M. Jacobson, *The Basis and Development of American Political Thought* (Century), is largely documentary and highly conventional in arrangement and ideas. C. F. Gohdes, *The Periodicals of Transcendentalism* (Duke), is a meticulous study. V. Dabney, *Liberalism in the South* (Univ. of North Carolina), is a survey from Jefferson's time to the present.

Little was done in political history and that little was of slight importance. R. S. Henry, *The Story of the Confederacy* (Bobbs-Merrill), is good reading, accurate and chiefly military, but it makes no original contribution to justify its replacing the many similar books already in the field. C. C. Regier, *The Era of the Muckrakers* (Univ. of North Carolina), is adequate but again adds little that is new. L. J. Trenholme, *The Ratification of the Constitution in North Carolina* (Columbia), works out an accepted thesis in more detail in a restricted locale.

DIPLOMATIC THEMES

American interest in diplomatic themes continued vigorous. P. J. Treat, *Diplomatic Relations between the United States and Japan, 1853-1895*, 2 vols. (Stanford), is a comprehensive survey. J. M. Callahan, *American Foreign Policy in Mexican Relations* (Macmillan), is accurate and detailed but somewhat sparing in interpretation and unimaginative. H. W. Taft, *Japan and America* (Macmillan), is concerned with recent problems. C. W. Kendall, *Private Men of War* (McBride), is a general account of privateering. F. R. Dulles, *America in the Pacific* (Houghton, Mifflin), is an account, for the most part familiar, of American expansion to the Orient. An excellent monograph is C. C. Tansill, *The Purchase of the Danish West Indies* (Johns Hopkins). Other books: A. Aschbach, *The Mission to Spain of Pierre Soule, 1853-1855* (Yale); A. C. Mills-paugh, *Hayti under American Control, 1915-1930* (World Peace Foundation); L. F. Hill, *Diplomatic Relations between the United States and Brazil* (Duke).

WORLD WAR

The American participation in the World War was studied in several works. F. M. Surface and R. L. Bland, *American Food in the World War and Reconstruction Period* (Stanford), is an authoritative statistical study. J. M. Clark, *The Costs of the World War to the American People* (Yale), is likewise authoritative and statistical. D. M. Fleming, *The United States and the League of Nations* (Putnam), is written in a spirit friendly to President Wilson. P. C. March, *The Nation at War*, 2 vols. (Doubleday, Doran), is an account by the chief of staff of the workings of the war department. W. S. Graves, *America's Siberian Adventure, 1918-1920* (Cape and Smith), is an account by the general in command of the American expedition to the Far East.

ECONOMIC HISTORY

In economic history a valuable work was C. H. Ambler, *A History of Transportation in the Ohio Valley* (Clark: Glensdale, Calif.). A co-

operative work engaged in by some forty contributors and edited by J. G. Glover and W. B. Cornell was *The Development of American Industry* (Prentice, Hall). E. E. Sparks, *History and Theory of Agricultural Credit in the United States* (Crowell), is a moderately successful regrouping of problems affecting agriculture. J. H. Frederick, *The Development of American Commerce* (Appleton), surveys the subject from the colonial period to the present. A. M. Sakolski, *The Great American Land Bubble* (Harper), treats episodically the more sensational of land speculations in American history. W. H. Daniels, *American Railroads* (Princeton Univ.), is a brief but in places important discussion of four phases of railroad history. J. H. Johnston, *Western and Atlantic Railroad of the State of Georgia* (Georgia Public Service Commission), is the history of a state owned railroad. F. L. Babcock, *Spanning the Atlantic* (Knopf), is a history of the Cunard Line. N. Beasley, *Men Working* (Harper), relates the development of the Goodyear Tire and Rubber Company.

THE COLONIAL PERIOD

The Colonial field was enriched by Marcus W. Jernegan, *Laboring and Dependent Classes in Colonial America* (Univ. of Chicago), a work of scholarship and understanding. Two worthy monographs were W. F. Craven, *Dissolution of the Virginia Company* (Oxford), and R. L. Higgins, *Expansion in New York* (Ohio State Univ.). Other books were: T. T. Waterman and J. A. Barrows, *Domestic Colonial Architecture of Tidewater Virginia* (Scribner); M. N. Rawson, *From Here to Yonder* (Dutton), a medley of highway life; and H. M. Konwiser, *Colonial and Revolutionary Posts* (published by the author).

STATE AND LOCAL

Among state and local histories, T. P. Abernethy, *From Frontier to Plantation in Tennessee* (Univ. of North Carolina), takes high rank. L. W. Newton and H. P. Gambrell, *A Social and Political History of Texas* (Southwest: Dallas), emphasizes the post-

Reconstruction period. The first two volumes of a new co-operative *History of the State of New York* (Columbia), appeared under the editorship of A. C. Flick. South Carolina's departure from "aristocratic traditions" since the Civil War is narrated in W. W. Ball, *The State that Forgot* (Bobbs-Merrill). The sea islands of the Southern coast were studied in two worthy books; C. C. Lovell, *The Golden Isles of Georgia* (Little, Brown), and C. D. Corse, *The Key to the Golden Islands* (Univ. of North Carolina). Other studies were: G. A. Cuthbertson, *Freshwater* (Macmillan), a history of the Great Lakes; C. Johnson, *Historic Hampshire in the Connecticut Valley* (Bradley: Springfield, Mass.); R. F. Watt, *The Story of Seattle* (Lowman and Hanford: Seattle); and F. H. Curtiss and J. Heard, *The Country Club, 1882-1932* (privately printed: Brookline, Mass.), the story of the first country club in the United States.

ANCIENT HISTORY

In ancient history the work of American historians was notable for achievement in technical scholarship. W. S. Ferguson, *The Treasures of Athena* (Harvard), is highly specialized, technical in treatment, and provides a firm basis for an understanding of the financial history of Athens. T. Frank, *Aspects of Social Behavior in Ancient Rome* (Harvard), is from the pen of an acknowledged authority. L. R. Taylor, *The Divinity of the Roman Emperor* (Amer. Philological Assoc.), is careful, thorough and valuable. E. R. Hardy, *The Large Estates of Byzantine Egypt* (Columbia), is likewise marked by scholarly penetration. W. L. Westermann and C. W. Keyes, eds., *Tax Lists and Transportation Receipts from Theadelphia* (Columbia), contains important information relating to the economic and administrative problems of Roman Egypt.

MEDIEVAL

In the medieval field the influence of the Medieval Academy of America was pronounced. This Academy sponsored the publication of three important monographs: A. Breardwood,

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Alien Merchants in England, 1350-1377 (Med. Acad.); J. L. LaMonte, *Feudal Monarchy in the Latin Kingdom of Jerusalem, 1100-1291* (Med. Acad.); and A. R. Anderson, *Alexander's Gate, Gog and Magog, and the Inclosed Nation* (Med. Acad.). Mention should also be made of *Persecution and Liberty: Essays in Honor of George Lincoln Burr* (Century), a worthy tribute to a distinguished scholar. C. H. McIlwain, *The Growth of Political Thought in the West* (Macmillan), is a concise, brilliant and powerful synthesis of political theory from the Greeks to the end of the Middle Ages.

MODERN

England.—In more modern fields of European history, American scholars showed a variety of interests. W. K. Jordan, *The Development of Religious Toleration in England* (Harvard), is a successful monograph. F. C. Church.

Italy and Bohemia.—*The Italian Reformers, 1534-1564* (Columbia), is a competent study. R. L. Kerner, *Bohemia in the Eighteenth Century* (Macmillan), is based on archival research with special emphasis on economic and social development.

France.—C. D. Hazen, *The French Revolution*, 2 vols. (Holt), is the result of years of careful research. C. L. Lokke, *France and the Colonial Question* (Columbia), treating the period from 1763 to 1801, and R. K. Wyllys, *The French in Sonora, 1850-1854* (Univ. of Calif.), deal with phases of French colonial history.

Spain.—Two books appeared as timely interpretations of the background of the recent overthrow of the

Spanish monarchy; R. Sencourt, *The Spanish Crown, 1808-1931* (Scribner), and J. McCabe, *Spain in Revolt, 1814-1931* (Appleton).

Germany and Sweden.—An important phase of recent German history was studied in A. Rosenberg, *The Birth of the German Republic, 1871-1918* (Oxford). A. A. Stomberg, *A History of Sweden* (Macmillan), is a condensed survey for American readers.

TEXTBOOKS

Two excellent textbooks were published; C. J. H. Hayes, *A Political and Cultural History of Modern Europe*, vol. 1, 1500-1830 (Macmillan) a thorough rewriting of an earlier work, and C. P. Higby, *History of Modern Europe* (Century), a clear account of the period from Napoleon to the present. In various phases of diplomatic history of Europe, American scholars brought out the following works: L. M. Case, *Franco-Italian Relations, 1860-1865* (Univ. of Penn.); L. G. Gordon, *American Relations with Turkey, 1830-1930* (Univ. of Penn.); H. R. Marraro, *American Opinion of the Unification of Italy* (Columbia); V. J. Puryear, *England, Russia and the Straits Question, 1844-1856* (Univ. of Calif.); F. L. Schumann, *War and Diplomacy in the French Republic* (Whittlesey); P. F. Shupp, *The European Powers and the Near Eastern Question, 1806-1807* (Columbia); L. D. Steefel, *The Schleswig-Holstein Question* (Harvard); P. G. Vigness, *The Neutrality of Norway in the World War* (Stanford); O. Wedell, *Austro-German Diplomatic Relations, 1908-1914* (Stanford); and E. L. Woodward, *War and Peace in Europe* (Long and Smith).

BIOGRAPHY

BY MALCOLM O. YOUNG

REFERENCE LIBRARIAN, PRINCETON UNIVERSITY

GENERAL

Gamaliel Bradford.—On April 11, 1932, America lost her most famous biographer, Gamaliel Bradford, author of ten or more collections of

"miniature" analytical biographies, "psychographs" (as he called them), and single volumes on Pepys, Darwin, Lee and Dwight L. Moody. His place will rank high in the newer type of

biographer, such as Maurois and Strachey. A posthumous volume has appeared, *Biography and the Human Heart* (Houghton Mifflin) containing essays on several such variant characters as Longfellow, Whitman, Charlotte Cushman and Walpole; also two essays on the art of biography (*N. Y. Times*, Oct. 11, 1932). Early in the year, just before his death, Mr. Bradford published *Saints and Sinners* (Houghton), sketches of, among others, St. Francis, Casanova, Byron.

Debunking Biography.—Claude M. Fuess, who has won a high place in this field by his works on Webster and Schurz, gave a lecture on the subject of biography at the Columbia University Summer Session (*N. Y. Times*, Aug. 7, 1932), in which he upheld the modern type of debunking biography, but said "no biography can succeed in 1932 if it lacks careful research."

COLLECTIVE

Eminent Americans by Dashiell Hammett (Putnam) includes such names as Walker, Huey Long, Capone, Bishop Cannon. Arthur Pound's *Native Stock* (Macmillan) is a series of informal essays on Sir William Pepperell, Ephraim Williams and four other colonial, picturesque figures. *Adventurous Americans* (Farrar and Rinehart) by Devere Allen, includes chapters on Justice Holmes, Jane Addams, Villard and twenty more liberals or radicals. One of the most entertaining books is Ray Tucker's and F. R. Barkley's *Sons of the Wild Jackass* (Page) dealing with Congressional insurgent leaders.

PRESIDENTS

Washington.—In spite of the Washington celebration, there have been no especially notable contributions. Perhaps the best is the series of monographs on numerous phases and episodes of Washington's life, done under the George Washington Bicentennial Commission (Washington, Government Printing Office). One must mention the best biography, although it is done by an Englishman, Norwood Young, entitled *George Washington, Soul of the Revolution* (McBride). Others include one by L.

M. Sears (Crowell) using the subject's own writings to a large extent; also *George Washington, Patron of Learning*, by L. C. Helderman (Century), M. D. Holmes, *George Washington: the Soul of a Nation* (Winston).

Lincoln.—The most valuable Lincoln book is by Emanuel Hertz (Liveright), the second of the two volumes consisting of 1,600 letters, speeches and other papers, many published for the first time. *Lincoln, the Unknown* (Century) by Dale Carnegie, contributes little new. There are two analyses of Mrs. Lincoln, one by W. A. Evans (Knopf) and the other by Carl Sandburg (Harcourt).

Cleveland and Wilson.—Two real contributions are the biographies of Grover Cleveland. The first by Denis Lynch (Liveright) is frank but causing a final feeling of admiration for the reader. The other, by Allan Nevins (Dodd) having the subtitle *A Study in Courage*, admirably portrays a truly great character. Ray Stannard Baker's third and fourth volumes of his *Woodrow Wilson* (Doubleday) continue the authorized biography to August, 1914. G. S. Viereck's *The Strangest Friendship in History* (Liveright) has to do with the Wilson-House alliance.

Hoover.—In the last year or so there has grown a considerable group of books concerning President Hoover, some as cheap attempts at debunking as have appeared recently, others able defenses, though not great books. The former have had an answer this year in Arthur C. Train's *Strange Attacks on Herbert Hoover* (Day). W. F. Dexter's *Herbert Hoover and American Individualism* (Macmillan), H. Corey's *Truth About Hoover* (Houghton), Edwin Emerson's *Hoover and His Times* (Garden City Publishing Co.), are also defenses.

PUBLIC MEN

Seymour W. Smith has written a *Life of John Hanson* (Brewer), sometimes called as by this writer, first president of the United States, but bearing the title of President of the United States in Congress Assembled. After these many years there has been

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published the *Autobiography of Peggy Eaton*, edited by C. F. Deems (Scribner), the sensational figure of Washington in the time of Jackson. An almost forgotten vice-president, the ninth, Richard M. Johnson, is brought to life in L. W. Meyer's *Life and Times of Col. Richard M. Johnson of Kentucky* (Columbia). Jefferson Davis' wife is the subject of Eron Rowland's *Varina Howell* (Macmillan), this being the second volume, covering the period of the Confederacy. *Little Aleck*, by E. R. Richardson (Bobbs-Merrill) is the biography of Alexander Stephens, vice-president of the Confederacy. L. A. White's *Robert Barnwell Rhett* (Century) and Avery Craven's *Edmund Ruffin* (Appleton) are both concerned with the question of secession. Claude M. Fuess' *Carl Schurz* (Dodd) is full of admiration for the subject, but still is fair. Senator Foraker's widow has written *I Would Like it Again* (Harp-er), full of social and political reminiscence. Claude G. Bowers' *Albert J. Beveridge and the Progressive Era* (Houghton) is one of the most important books of the year, in its successful portrayal of a most interesting man. Silas Bent's *Justice Oliver Wendell Holmes* (Vanguard) is not too legalistic for the lay reader. Ida M. Tarbell has not lived up to her reputation in her *Life of Owen Young* (Macmillan). Moorfield Storey is a too little known figure, well set forth in M. A. Dewolfe Howe's *Portrait of an Independent* (Houghton). Clarence Darrow wrote his *Autobiography* (Scribner). Samuel Seabury, conspicuous this year, is the subject of a book by Walter Chambers (Century); and the *Life of Secretary of War Hurley* is written by Parker La Moore (Brewer). Franklin Roosevelt is naturally the subject of campaign biographies, as L. M. Ross and A. W. Grobin's *This Democratic Roosevelt* (Dutton), Earle Looker's *This Man Roosevelt* (Brewer).

MILITARY MEN

Benedict Arnold: Military Rocketeer (Vanguard) by E. D. Sullivan, is a portrait done in journalistic style. Lloyd Lewis' *Sherman: Fighting*

Prophet (Harcourt) and William E. Brooks' *Lee of Virginia* cover the Civil War. The latter is an interpretation of Lee as a man rather than as a military leader. Then there is a group of picturesque characters: Basil Lubbock writes *Bully Hayes, South Sea Pirate* (Lauriat); Stuart Lake, *Wyatt Earp, Frontier Marshall* (Houghton); W. B. Clark, *Lambert Wickes, Sea Raider and Diplomat* (Yale Press); Cornelius Brosman, *Jason Lee, Prophet of the New Oregon* (Macmillan). *Sitting Bull* is the subject of Stanley Vestal's new book (Houghton), and another Sioux, Black Eagle, has told his life story to John G. Neihardt (Morrow).

MEN OF BUSINESS AFFAIRS

One of the most notable books of the year is Kenneth W. Porter's *John Jacob Astor* (Harvard Press), a scholarly work, illuminating an important period. In the same way, B. J. Hendrick's *Life of Andrew Carnegie* is more than a biography of a man. A spectacular character is portrayed by R. I. Warshow's *Bet-a-Million Gates: the Story of a Plunger* (Greenberg). Jonathan N. Leonard believes that Henry Ford has not discovered true values, in his *Tragedy of Henry Ford* (Putnam). John D. Rockefeller is the subject of a new biography. John T. Flynn in *God's Gold* (Harcourt) gives a well balanced, documented picture.

LETTERS AND THE ARTS

Outstanding for style and interest is the *Autobiography of Frank L. Wright* (Longmans), the revolutionary architect. W. T. Whiteley's *Gilbert Stuart* (Harvard Press) and Adeline Adams' *Daniel Chester French* (Houghton) are the other two notable books in the field of painting and sculpture. A little known literary character of the post-Revolutionary period is Hugh Henry Brackenridge, whose *Life and Writings* are compiled by C. M. Newlin (Princeton Press). Van Wycks Brooks' *Life of Emerson* (Dutton) places the subject in a new perspective. C. Hartley Grattan has a biographical study *The Three James: a Family of Minds* (Longmans). A.

H. Starke's *Sidney Lanier* (U. of North Carolina) is a critical biography. Franklin Walker's *Frank Norris* (Doubleday) and Isaac Marcossos's *David Graham Phillips* (Dodd) cover literary life of the nineties and early 1900's. Gertrude Atherton's *Adventures of a Novelist* (Liveright) is a stream of contact with literary characters. Upton Sinclair has begun his autobiography in *American Reminiscences* (Farrar). One of America's great recent newspaper men is the subject of G. Gardner's *Lusty Scripps* (Vanguard).

LEADERS OF THE SPIRIT

The earliest in this group is Roger Williams, set forth by James Ernst (Macmillan). A scholarly work is A. C. McGiffert's *Jonathan Edwards* (Harper). Biographies of two other 18th century characters are *John Wesley* by C. E. Vulliamy (Scribner) and *Charles Wesley*, by F. L. Wiseman (Abingdon). Quite a different leader was Thomas Paine, whom George Creel portrays (Sears). The romantic worker among the lepers, Father Damien, has biographies: one by Irene Caudwell (Macmillan), and one by C. J. Dutton (Dodd). Another book on Mrs. Eddy, based largely on hitherto unpublished material, is by E. B. Bates and J. V. Dittmore, former disciples (Knopf). *Leonard Bacon, a Statesman of the Church*, is by T. D. Bacon (Yale). Elwood Worcester, of the Emanuel Movement, writes his autobiography under the title of *Life's Adventure* (Scribner).

EDUCATORS

Leland Stanford by George T. Clark (Stanford University Press), portrays a railroad man, Civil War governor of California, and founder of a university. Charles Goodspeed's *Thomas Wakefield Goodspeed* (University of Chicago) is of one of the founders of the University of Chicago. An educator of the southern mountaineers is the subject of T. Byers' *Martha Berry* (Putnam).

FOREIGN SUBJECTS

Americans have this year written some notable biographies of foreigners. C. W. Everett's *Education of Jeremy Bentham* (Columbia), Matthew Josephson's *Jean-Jacques Rousseau* (Harcourt), Henry Dwight Sedgwick's *Life of Edward the Black Prince* (Bobbs-Merrill); Marcia Davenport's *Mozart* (Scribner); *Huxley*, by Houston Peterson (Longmans), and a life of the same philosophical scientist by C. Ayres (Norton); *Rembrandt*, by A. M. Hind (Harvard); *Monsieur Thiers*, by J. M. S. Allison (Norton); a new work on Shaw (Appleton) by the Shavian authority, Archibald Henderson. Cortez' companion, Pedro de Alvarado, is the subject of a book by J. E. Kelly (Princeton Press). Carleton Beals, journalist writer on Mexico, does Porfirio Diaz (Lippincott). The year could not pass without notice of the unbelievable Kreuger. There are two books dealing with him, one by William H. Stonemar (Bobbs-Merrill) and one by Earl Sparling (Greenberg).

TRAVEL

BY ELIZABETH T. PLATT

ASSISTANT LIBRARIAN, AMERICAN GEOGRAPHICAL SOCIETY

ASIA

Arabia.—Several outstanding tales of travel have made the last year particularly noteworthy. This has been especially true of material dealing with Asia. The narrative of Bertram Thomas's epic-making crossing of the Rub' al Khali, the great desert of

Southern Arabia, is available in *Arabia Felix: Across the "Empty Quarter"* of Arabia (Scribner). Here he has told of his experiences in crossing the southern and eastern section of Arabia. There are faithful descriptions of the country and of the native life and customs.

Manchuria.—Another report by a keen observer is Owen Lattimore's penetrating study of Manchuria, *Manchuria, Cradle of Conflict* (Macmillan). This is based on experience gained during nine months of travel and residence in Manchuria in 1929-1930.

Central Asia.—The American edition makes available to the non-German reading public the narrative of Sven Hedin in which he tells of the Sino-Swedish Expedition into the Gobi from Peking to Lop Nor, "the wandering Lake"; *Across the Gobi Desert* (Dutton). There has also been an American edition of Emil Trinkler's *The Storm-swept Roof of Asia. By Yak, Camel and Sheep Caravan in Tibet, Chinese Turkestan and over the Karakorum* (Lippincott). The objective of the Central Asian Expedition of 1927-1928 was primarily to study the geology and morphology of the area. The present work is the non-scientific account of the expedition.

Himalayas.—Henrietta S. Merrick has written of her travels in the Himalayas in *In the World's Attic* (Putnam). Sir Francis Younghusband has written the introduction in which he characterizes it as "over old tracks in a new spirit."

Persia.—*A Persian Journey: Being an Etcher's Impressions of the Middle East* (Cape & Smith) by Fred Richards is the attempt of an artist to portray by word and picture the atmosphere and spirit of the Middle East. The illustrations are of life in Isfahan, Shiraz, Kerman, Meshed, Nishapur and Tabriz.

AFRICA

Martin Johnson's adventures in photographing the pygmies of the Itura forest and the gorillas of East Africa are told in his *Congorilla, Adventures with Pygmies and Gorillas in Africa* (Brewer, Warren and Putnam).

LATIN AMERICA

Lower California.—The observations of naturalists have been an outstanding element in the travel literature of the year. Griffing Bancroft's record of a trip around the peninsula of Lower California, although written

primarily from the point of view of an ornithologist has much of general interest; *Lower California: A Cruise—The Flight of the Least Petrel* (Putnam).

Brazil.—There has been an American edition of Konrad Guenther's *A Naturalist in Brazil. The Record of a Year's Observations of her Flora, her Fauna, and her People* (Houghton, Mifflin).

West Indies.—William Beebe has written of his experiences on Nonsuch Island, Bermuda and in the surrounding waters. It is a portrayal of the "colors, odors, sounds, and sights, the island sea, sky and living creatures; *Nonsuch, Land of Water*. (Brewer, Warren and Putnam). J. C. Van Dyke's *In the West Indies—Sketches and Studies in Tropic Seas and Islands* (Scribner) is an attempt to interpret the island "pictorially rather than politically, economically or socially." Panama with Barro Colorado Island is included. L. R. Freeman has written *Afloat and Aflight in the Caribbean* (Dodd, Mead).

Central America.—Carleton Beals has written of his journey south from Mexico through Central America at a time when diplomatic difficulties were looming; a good deal of the political situation is included: *Banana Gold* (Lippincott). E. H. Thompson, the author of *The People of the Serpent; Life and Adventures among the Mayas* (Houghton, Mifflin) has spent many years in the land of the Mayas as United States Consul, archeologist and planter. F. A. Mitchell-Hedges presents some of his Central American experiences in *Land of Wonder and Fear* (Century).

South America.—H. S. Dickey, who has spent much of his life in South America, describes particularly the Orinoco region in *My Jungle Book* (Little, Brown). There have been several more general works. Annie S. Peck tells of her circuit of South America by air in *Flying over South America: Twenty Thousand Miles by Air* (Houghton, Mifflin). There has been an American edition of Edschmid Kasimir's *South America: Lights and Shadows* (Viking) and of Count Keyserling's *South American Meditations:*

on *Hell and Heaven in the Soul of Man* (Harper).

POLAR REGIONS

A volume that has evoked a good deal of comment is Jan Welzl's *Thirty Years in the Golden North* (Macmillan). It is a record of thirty years spent among the trappers, goldminers and Eskimos of northern Siberia, Canada, and Alaska. The preface states that there is a difficulty arising "from the necessity of drawing a distinction between Welzl's actual experiences and the things which he knew only by hearsay, and which he believed in, for all their apparent absurdity." W. N. Beach's account of four trips (1922-1930) in and around Mount McKinley Park may be found in his *In the Shadow of Mount McKinley* (Derrydale Press). It contains a section on big game.

GENERAL

Among the general travel books is *Men on the Horizon* (Houghton, Mifflin) which is the observant account of Guy Murchie, who, upon graduating from college, set out for a trip around the northern half of the globe to find out more of the life of man. J. M. Bell, Canadian geologist, tells of his journeys to northern Canada, Great Slave and Great Bear Lake, New Caledonia, the Kirghiz Steppes, and Albania in *Far Places* (Macmillan). The story of the last trip of the

Carnegie, the world's only sea-going non-magnetic observatory, destroyed by an explosion in Apia, is told by J. H. Paul in *The Last Cruise of the Carnegie* (Williams and Wilkins). It includes an account of the visits of the crew to Iceland, Germany, Easter Island and Samoa. *Fair Winds and Foul: Ship, Crew, Sea, Horizon*, by Heinrich Hauser (Liveright) is a diary written on board the sailing ship *Pamir* on its voyage from Germany, around Cape Horn and up the west coast of South America. Oswald Hering has set forth some impressions, particularly of India, Java, and Bali, and South America in *Down the World. Random Tales of a Traveler* (McBride). Richard Halliburton's *The Flying Carpet* (Bobbs-Merrill) tells of his adventures in the airplane *Flying Carpet* in Africa and across Asia Minor to India, and thence down the Malay Peninsula to Borneo and the Philippines.

AUTOBIOGRAPHICAL

In *Search* (Brewer, Warren and Putnam) Lincoln Elsworth tells of his life of adventure, his early surveys in Canada, of his flights with Amundsen and of his flight in the *Graf Zeppelin*. E. A. Powell records many of his experiences in *Yonder Lies Adventure* (Macmillan). Amelia Earhart's *The Fun of It* (Brewer, Warren and Putnam) contains a brief account of her Atlantic flights.

FICTION

BY MAY LAMBERTON BECKER

READERS' GUIDE, *The Saturday Review of Literature*

THE CONTEMPLATIVE

Charles Morgan.—The year 1932 will go down in history as a year when to those behind the scenes in publishing, the word "best-seller" had a somewhat sardonic sound. It sometimes came near to meaning only something that sold better than not much. But in a year like this the sweeping success in America of an English novel by a writer hitherto un-

known save by a group inconsiderable in numbers—Charles Morgan's *The Fountain*—gives it importance in making any such survey as this of our own field. This success was a surprise only to those insensitive to present psychological conditions. A novel that emphasizes being as against buying, that indicates possibility of life apart from possessions, came at precisely the moment for a baffled and resent-

ful public. Within a few weeks of its publication the New York Public Library brought out, in response to readers' continual and emphatic demands, a pamphlet reading-list of books on the contemplative life; so far as one can learn this is the first time that a "supplementary reading list" has been printed before the book on which it was based had been before the public for six months.

Sons and Peking Picnic.—There was a closer relation than a glance might show in the success of the American novel that in like manner swept the country,—Pearl Buck's *Sons*. Coming in as a sequel on the wave of its predecessor's popularity, it showed the military class in China with the same creative sympathy that made the agricultural class familiar to us in *The Good Earth*; moving steadily and giving to strange scenes the underlying rhythm of the King James version of the Old Testament, it afforded its own escape into larger life and out of local preoccupations. Again, the contrast between Chinese and Western attitudes is the inner drama of Ann Bridge's *Peking Picnic*, which won the Atlantic prize.

ROMANTIC FICTION

Miss Glasgow and Miss Cather.—With *The Sheltered Life* Ellen Glasgow produced her masterpiece, and for this season, at least, drew ahead in the unacknowledged race going on for seasons past between Miss Glasgow and Miss Cather for first place in contemporary American fiction. It is a race organized by neither author, but by their respective admirers and adherents; this year Willa Cather returned to a *genre* in which she has proved her power, in the long short stories of *Obscure Destinies*.

Booth Tarkington began the season with a brisk trifle of summer-resort rivalries, *Mary's Neck* and closed it with a return, though in far more thoughtful spirit, to the scene of his *Beaucaire*, with *Wanton Mally*.

Christopher Morley.—In Christopher Morley's *Swiss Family Manhattan* a Geneva professor, air-ship-wrecked on the Empire State Building, descends to give our civilization

a satiric survey; his *Human Being* a novel utilizing some of the by-products of *John Mistletoe* in a panorama of the publishing business, brought to a close a season that included Theodore Dreiser's *The Stoic* and Sherwood Anderson's *Beyond Desire*.

Sequels.—In a season of sequels, English, American and even including the Scandinavian, Edith Wharton's *The Gods Arrive* continued the study, begun in *Hudson River Bracketed*, of a novelist's adaptation of life to the uses of art, and T. S. Stribling's chronicle of an Alabama family of the old school reached in *The Store*, the post-reconstruction days of 1884.

OTHER WORKS OF FICTION

Faulkner.—The vogue of William Faulkner continued to harass not only Victorian survivals but even moderns resolute as Ernest Hemingway. *Light in August* was the most discussed, the most widely and probably the most cautiously praised novel of the naturalistic school.

John Dos Passos in 1919 continued to experiment in a technique now familiar.

W. R. Burnet in *The Giant Swing* added another powerful portrait to his gallery of primitive types surviving in our society.

First Novels.—Of first novels of the stream-of-consciousness type Edward Dahlberg's *From Flushing to Calvary* showed promise; a more experienced American novelist, living abroad, Bridget Dryden, used the method with greater freedom and on a subject more ingratiating, in *Whither I Must*. Otherwise our fiction kept well within lines of the expected: it was not a year promising encouragement to experimentation.

Stong.—Midway of it the instant success of Phil Stong's *State Fair* showed an audience waiting for homely, rapidly moving stories in which genuine drama inherent in rural life is shown, to be not without its comic side.

Ruth Boodgett in *Home Is the Sailor* brought out the salt side of New England.

Social and Family Relations.—Personal problems involving relations with society and the family in present-day middle-class circles impelled Nella Gardner White's *Mrs. Green's Daughter-in-Law*, Isa Glenn's *East of Eden*, David McCloud's *Dance Out the Answer*, Rose Feld's *Young Man of Fifty*, the second novel of the author of *Heritage*, Dean Van Clute's poignant record of triumph over crushing conditions in *Pour Wine for Us*, Mathile Eiker's *Brief Seduction of Eva*, Helen Hull's *Heat Lightning*, Vina Delmar's *Women Live Too Long*, and Elizabeth Corbett's story of a business woman, *After Five O'clock*.

Negro Life.—Julia Peterkin's *Bright Skin* was far in the lead of the group of novels concerned with negro life in America, and this included as valuable contributions to its study as Jessie Fauset's *Chinaberry Tree* in the upper reaches of negro society, and Welbourn Kelley's *Inchin' Along* on an Alabama farm.

Civil War.—Just why the Civil War should have figured so largely in the fiction of 1932, for old or for young, it would be hard to say; we had in DuBose Heyward's *Peter Ashley* a singularly vivid and delicate treatment of the months of suspense just before Sumter, and Leonard Ehrlich's *God's Angry Man*, was welcomed as one of the most promising pieces of best fiction of recent years. Inez Haynes Irwin's *Youth Must Laugh* showed a family of young women before and after the Civil War, and in *Whistling Cat* Robert Chambers produced a hustling romance between lines of battle. Other American historical fiction included Helen Carlisle's chronicle novel *We Begin* and Stewart Edward White's *Long Rifle*.

Novels of Social Protest.—Two novels of social protest made a strong impression, both as human documents and as literary art, in each case heightened by restraint. These were Olive Tilford Dargan's *Call Home the Heart*, under the author's pseudonym of Fielding Burke, and Catharine Brody's *Nobody Starves*.

The adventure novel of the year far and away the most striking was

Nordhoff and Hall's masterly treatment of fact in *Mutiny on the Bounty*.

NOVELS AND LIFE

There is every indication that to hold their own against the steadily increasing popularity of non-fiction, novels meant for wide reading in America will have to have something in them that the general reader can work somehow into his scheme of life. Books that have done that this year have, in proportion to the readers they have thus rewarded, rewarded their authors and publishers.

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- Sons.* Pearl Buck (John Day).
Peking Picnic. Ann Bridge (Little).
The Sheltered Life. Ellen Glasgow (Doubleday).
Obscure Destinies. Willa Cather (Knopf).
Mary's Neck; Wanton Mally. Booth Tarkington (Doubleday).
Swiss Family Manhattan; Human Being. Christopher Morley (Doubleday).
The Stoic. Theodore Dreiser (Liveright).
Beyond Desire. Sherwood Anderson (Liveright).
The Gods Arrive. Edith Wharton (Appleton).
The Store. T. S. Stripling (Doubleday).
Light in August. William Faulkner (Smith and Haas).
 1919. John Dos Passos (Harcourt).
The Giant Swing. W. R. Burnett (Harper).
From Flushing to Calvary. Edward Dahlberg (Harcourt).
Whither I Must. Bridget Dryden (Stokes).
State Fair. Phil Stong (Century).
Home is the Sailor. Ruth Blodgett (Harcourt).
Mrs. Green's Daughter-in-Law. Neila G. White (Stokes).
East of Eden. Isa Glenn (Doubleday).
Dance Out the Answer. David McCloud (Longmans).
Young Man of Fifty. Rose C. Field (Dutton).
Pour Wine for Us. Dean Van Clute (Stokes).

POETRY

Brief Seduction of Eva. Mathilde Eiker (Doubleday).

Heat Lightning. Helen Hull (Coward-McCann).

Women Live Too Long. Vina Delmar (Harcourt).

After Five O'Clock. Elizabeth Corbett (Century).

Bright Skin. Julia Peterkin (Bobbs-Merrill).

The Chinaberry Tree. Jessie Fauset (Stokes).

Inching Along. Welbourn Kelley (Morrow).

Peter Ashley. DuBose Heyward (Farrar).

God's Angry Man. Leonard Ehrlich (Simon and Shuster).

Youth Must Laugh. Inez Haynes Irwin (Bobbs-Merrill).

Whistling Cat. Robert Chambers (Appleton).

We Begin. Helen Carlisle (Smith).

Long Rifle. Stewart Edward White (Doubleday).

Call Home the Heart. Fielding Burke (Longmans).

Nobody Starves. Catherine Brody (Longmans).

Mutiny on the Bounty. Charles Nordhoff and James Norman Hall (Little).

Prologue to Love. Martha Ostenso (Dodd, Mead).

Lark Ascending. Mazo de la Roche (Little).

POETRY

BY MAY LAMBERTON BECKER

READERS' GUIDE, *The Saturday Review of Literature*

FICTION IN VERSE

The wave of interest in book-length poetry,—fiction in verse—lately so high, receded to some extent but left two books of distinguished merit: William Rose Benét's *Rip Tide*, a rapid and striking romance in verse, and the bold and impressive *Conquistador* of Archibald Macleish, a heroic poem of Cortez in Mexico. The popular favorite, Edna St. Vincent Millay's *The Princess Marries the Page*, came late in the year. Edwin Arlington Robinson's *Nicodemus* is in narrative form; the biblical title-poem is followed by Old Testament studies and portraits of heroes of the West Indies. Edgar Lee Masters' dramatic poem *Godbey* develops the later life of one of the characters of *Jack Kelso* in violently satiric allegory. With Robinson Jeffers' *Thurso's Landing*, a tense and faithful narrative of human conflict in California, is included shorter poems; his *Descent to the Dead* is a collection of elegies written in Ireland and the British Isles. *A White Bird*, by Gertrude Bartlett, opens with a narrative romance of Nungesser's flight. *Thrust*

at the Sky, by Macknight Black, is a posthumous volume by the regretted author of *Machinery*; the greater part is a narrative.

COLLECTIONS AND LONG POEMS

This year has been marked by several volumes of collected work, of which the highest point was reached by the *Collected Poems* of Elinor Wylie, a noble volume with the sad distinction of being definitive. The *Poems* of Padraic Colum, who, though Irish, has written in America long enough to be here considered, and the *Collected Poems* of Richard Burton, came out this year, and Edwin Markham displayed lasting vigor in *New Poems*, eighty songs at eighty.

Of other work by poets of established reputation, Louis Untermeyer's *Food and Drink*; the fourth volume of sensitive verse from Robert Tristram Coffin, *Yoke of Thunder*; and Allen Tate's *Poems: 1928-1931*, stand out in the year's account. John V. A. Weaver's *Trial Balance* is chiefly autobiographical, and Margaret Weddemer's *Road to Downterry* contains several of her more popular magazine

verses, including the "White Bird Flying" to which Bess Streeter Aldrich's novel of that title drew national attention. Among "first volumes" Marion Canby's *High Mowing*, Mary Britton Miller's *Without Sanctuary*, Elizabeth Morrow's *Quatrains for My Daughter*, Selden Rodman's *Mortal Triumph* and Phillips Kloss' descriptive poems of the Southwest in *Arid* are noteworthy in a year when poets were given more chances of seeing *opus 1* in print than might have been foretold from the conditions. Sterling Brown's *Southern Road* made a distinguished contribution to the rapidly growing literature of negro life, and in *Paul Bunyan*, a folk-comedy in three acts, Richard L. Stokes gave yet another setting to the familiar saga of the lumberman's hero.

CRITICISM

In the field of criticism the most dramatic episode was the struggle against adverse conditions of the magazine *Poetry*, Harriet Monroe's sturdy review that has done so much for American verse. The steady evaluation and encouragement of the department "Round About Parnassus" conducted by William Rose Benét in the *Saturday Review of Literature* did much to keep poetry on an even keel through the season's storms. A feature of the year was the freshness and vigor of young verse produced in schools all over the country under the influence of creative teaching of literature. Some of the best of this appeared in *Saplings*, the annual volume of prize-winning verse and prose resulting from the long-established high school nation-wide competitions of *The Scholastic Magazine*, and in *Younger Poets*, an anthology of school verse edited by Nellie B. Sergeant. The change in attitude in high schools generally is indicated in the new manuals of verse-writing; a book like *Writing Poetry*, by Marie Gilchrist, should be compared with one of the old handbooks of prosody to realize the new spirit in education.

ABOUT POETS AND POETRY

Books about poets or poetry include

Van Wyck Brooks' masterly *Life of Emerson*; *The Dark Glory*, Dorothy Dow's fictionalized biography of Poe; *Scientific Thought in Poetry*, by Ralph B. Crum, and Max Eastman's *The Literary Mind*.

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Poems. Padraic Colum. (Macmillan).
New Poems. Edwin Markham. (Doubleday).
Rip Tide. William Rose Benét. (Duffield).
Conquistador. Archibald Macleish. (Houghton).
The Princess Marries the Page. Edna St. Vincent Millay. (Harper).
Food and Drink. Louis Untermeyer. (Harcourt).
Descent to the Dead. Robinson Jeffers (Random House).
Thurso's Landing. Robinson Jeffers. (Liveright).
Poems: 1928-1931. Allen Tate. (Scribner).
Trial Balance. John V. A. Weaver. (Farrar).
The Road to Downderry. Margaret Widdemer. (Farrar).
Middle Earth. Gamel Woolsey. (Simon and Shuster).
These Acres. Frances Frost. (Houghton).
The Boy With a Silver Plow. Dennis Murphy. (Kaleidoscope Press).
Color of Steel. Louise Crenshaw Ray. (University of N. C. Press).
All My Youth. Fredericka Blankner. (Brentano).
A White Bird. Gertrude Bartlett. (Macmillan).
Thrust at the Sky. Macknight Black. (Simon and Shuster).
Southern Road. Sterling Brown. (Harcourt).
Speaking at Seventy. Mary E. Bulkley. (Gelber).
High Mowing. Marion Canby. (Houghton).
Without Sanctuary. Mary Britton Miller. (Macmillan).

CRITICISM AND BELLES LETTRES

Mead and Mangelwurzel. Grace Coates. (Caxton).

Quatrains for my Daughter. Elizabeth Morrow. (Knopf).

Mortal Triumph. Selden Rodman. (Farrar).

Yoke of Thunder. Robert P. Tristram Coffin. (Macmillan).

Arid. Phillips Kloss. (Macmillan).
Paul Bunyan. Richard L. Stokes. (Putnam).

Younger Poets. ed. Nellie B. Sergeant. (Appleton).

Saplings. Seventh series. (Scholastic Publishing Company).

Writing Poetry. Marie Gilchrist. (Houghton).

CRITICISM AND BELLES LETTRES

By W. B. C. WATKINS

INSTRUCTOR, PRINCETON UNIVERSITY

DEFINITION

It may sometimes be thought Belles-Lettres is a term retained mainly because it is a convenient catch-all for writing of an ambiguous nature, difficult to classify precisely. And yet in this very vagueness lies the term's usefulness, provided one does not stretch it too far. The question is largely one of proportion. Works concerned primarily with drama, music, art, biography, history, philosophy, research, sociology, or anthropology are omitted from this article, since these subjects are treated elsewhere. For the same reason, works that are essentially products of research are not included under criticism, though they may be critical in nature.

LITERARY CRITICISM

Babbitt.—*On Being Creative and Other Essays*, by Irving Babbitt (Houghton, Mifflin), develops a theme derived from Aristotle: "The seed is to be found not in the origins but in the completed thing." Mr. Babbitt reaffirms his humanistic principles, and essays a clarification of his critical position.

T. S. Eliot.—*Selected Essays—1917-1932* (Harcourt, Brace) and *John Dryden* (Holliday), by T. S. Eliot. The first of these volumes contains Mr. Eliot's choice among his critical essays since 1917, including much of *The Sacred Wood* and *For Lancelot Andrews* the whole of *Homage to John Dryden* and *Dante*, as well as several essays not published before in

America and not easy to secure even in England. This book represents one of the most important contemporary contributions to literary criticism. The second volume consists of three new essays on Dryden (considered as poet, dramatist, and critic), supplementing Mr. Eliot's earlier essay.

Max Eastman.—*The Literary Mind, its Place in an Age of Science*, by Max Eastman (Scribner). Mr. Eastman attempts to prove that poets *qua* poets know nothing about life. "Where our own parents consulted the poets for direct guidance in the unmanageable crises of their lives, we consult the nerve-specialist or the psycho-analyst . . . as science extends and deepens its domain, those cases in which the soundest judgment can be rendered by a man cultivating the mere art of letters will grow steadily fewer." A literary man attacks his own profession.

Van Wyck Brooks.—*Sketches in Criticism*, by Van Wyck Brooks (Dutton). This is a number of critical essays, dealing for the most part with American writers and their *milieu*, including a criticism of Mr. Eastman's thesis in his *Literary Mind*.

The Poets.—*A Garland for John Donne*, edited by Theodore Spencer (Harvard) was published too late in 1931 to be included in the YEAR BOOK. It is a collection of eight essays on various aspects of Donne by different critics, including three Americans, in commemoration of Donne's tercentenary. Donne is considered in relation

to the present age as well as to his own times. Lionel Stevenson's *Darwin Among the Poets* (Chicago) is a study of poetry in relation to the evolutionary theory, particularly with reference to Tennyson, Browning and Meredith. In *Browning* (Dutton) F. R. G. Duckworth considers first the kind of interest and criticism aroused by Browning in three different periods; then presents his own views and conclusions on Browning's poetry. *Swinburne, a Literary Biography*, by George Lafourcade (Morrow) is included here because it is concerned as much with an interpretation of Swinburne's poetry as with the story of his life. There are two new books on Shelley. Bennett Weaver's *Toward the Understanding of Shelley* (Univ. of Michigan) is a study mainly of Biblical influence on the poet. Professor Floyd Stovall in his *Desire and Restraint in Shelley* (Duke Univ.), while perhaps primarily interested in biography, applies to Shelley his theory concerning the way in which the creative imagination uses its material. Lastly, F. C. Prescott and G. DeWitt Sanders editors of *Introduction to American Poetry* (Crofts), an anthology from Anne Bradstreet to Vachel Lindsay, preface the selections from each poet with a brief criticism of his contribution to American poetry.

Criticism and American Literature.

—V. F. Calverton's *Liberation of American Literature* (Scribner) approaches the subject from a Marxian angle. His thesis is that cultural manifestations are the result of economic forces operating through social classes. Grant C. Knight's *American Literature and Culture* (Long and Smith) is a survey of American literature, with an attempt to show the relations between the literature, and the history, manners and social conditions of the times. In *Expression in America* (Harper) Ludwig Lewisohn writes, not a history of American literature, but an interpretation of creative thought in this country and of the American spirit as expressed in our literature. John Macy has collected together critical essays on the writers and literature of America by thirty-

seven contemporary writers and critics in his *American Writers on American Literature* (Liveright). *Forgotten Frontiers: Dreiser and the Land of the Free* (Smith and Haas) by Dorothy Dudley is a recapitulation of the modern literary movement in this country. Isaac Marcossin goes a little further into the past in his *David Graham Phillips and his Times* (Dodd, Mead) to resurrect an almost forgotten novelist of the Rooseveltian decade.

Miscellaneous.—*The Heavenly City of the Eighteenth Century Philosophers*, by Carl Becker (Yale) advances the thesis that the temper of the eighteenth century was essentially medieval. *History of the Novel in England*, by R. M. Lovett and H. S. Hughes (Houghton, Mifflin) contains much excellent critical comment. Professor Hoxie Neale Fairchild traces the progress of romanticism in England in his *Romantic Quest* (Columbia), which has critical chapters on Burke, Godwin, Scott, and others. *The Issue in Literary Criticism*, by Myron F. Brightfield (Univ. of California) is a study of the principles of literary criticism as products of the scientific method. Other books in this field are: *Essays and Studies in English and Comparative Literature*, by members of the University of Michigan; the *Craft of Writing*, by Percy Marks (Harcourt, Brace); *Goethe the Challenger*, by Alice Raphael (Cape and Ballou); *Henry Fielding's Theory of the Comic Prose Epic*, by Ethel M. Thornbury (Wisconsin); *The Greek View of Poetry*, by E. E. Sikes (Dutton); *Pattern and Variation in Poetry*, by Chard Powers Smith (Scribner).

BIOGRAPHICAL REMINISCENCES

Memoirs and whatever may be material for biography have been grouped here, but not treated in a formal, complete way. Frances M. Wolcott's *Heritage of the Years; Kaleidoscopic Memories—1859-1889* (Minton, Balch) is a case in point,—informal reminiscences of a woman who has led a varied and active life. The title *Experiences Facing Death* (Bobbs) is self-explanatory. Starting from two personal experiences, the author, Mary

Austin, seeks to analyze her feelings and the various beliefs of mankind respecting death and afterlife. *Sacred and Profane Memories*, by Carl Van Vechten (Knopf) might be called notes for an autobiography. William Lyon Phelps has written the foreword to Ellery Walter's *High Hats and Low Bows* (Putnam), a book of reminiscences devoted to experiences in obtaining interviews with prominent Europeans. Lastly, in *Told at the Explorer's Club: True Tales of Modern Exploration*, edited by F. A. Blossom (A. and C. Boni), well-known explorers tell true stories of their own experiences.

THE FAMILIAR ESSAY

A third posthumous volume of essays and literary editorials by Stuart P. Sherman has been published as *The Emotional Discovery of America* (Farrar). *The Intimate Note Books of George Jean Nathan* (Knopf) is a selection of essays written from personal and critical viewpoints. Other collections of essays are: *First Nights and First Editions*, by Harry B. Smith (Little, Brown); *Pen-Drift*, by C. E. Crane (Stephen Daye), and *Bensbook*, by Benjamin Musser (Oglethorpe Univ.).

THE AMERICAN SCENE AND MIND

This has been a popular field during the year. Lewis Mumford's *Brown Decades* (Harcourt, Brace), is a study of American culture as manifested in literature, painting, and especially architecture, during the latter part of the nineteenth century and early twentieth. In *A Passing America: Considerations of Things of Yesterday Fast Fading from our World* (Holt) Cornelius Weygandt looks backward; in his *New Horizons in American Life* (Columbia), John Jay Chapman looks to the future. *America as Americans See It*, edited by F. J. Ringel (Harcourt, Brace), is a symposium of forty-six American citizens, some of whom are only recently naturalized, some famous, some not.

Of the books relating more specif-

ically to the American scene, Bernard de Voto's *Mark Twain's America* (Little, Brown), is outstanding. It presents an interesting panorama of pre-Civil and Civil War frontier life. Mr. de Voto disputes Van Wyck Brooks' contention that Mark Twain was "frustrated" by his environment. *Way Down South* (Fischer), by Clarence Muse and David Arlen is a group of sketches of the negro theatrical circuit through the South. *Back Yonder*, by Wayman Hogue (Minton, Balch), is a chronicle of a boyhood spent in the Ozarks. *California Trail*, by Arthur B. Hulbert (Little, Brown), tells of early life in the West.

FOLK LORE AND LITERATURE

By far the most important book in this field published this year is the *Ballad of Tradition*, by Gordon Hall Gerould (Oxford), the purpose of which is a new appraisal of our present knowledge about ballads, and the presentation of personal conclusions about their history. *Devil's Ditties*, by Jean Thomas and Philip Gordon (Hatfield) is a collection of balladry and folk-ways of Kentucky mountaineers. In addition are: *Black Elk Speaks: Being the Life Story of a Holy Man of the Ogalala Sioux* as told to John G. Neihardt (Morrow); and *Dancing Gods: Indian Ceremonials of New Mexico and Arizona*, by Erna Fergusson (Knopf).

MISCELLANEOUS

Two instances of salvaging from the past are *I Sit and Look Out: Editorials from the Brooklyn Daily Times*, by Walt Whitman, selected and edited by Emory Holloway and Vernolian Schwarz (Columbia); and *Uncollected Lectures*, by Ralph Waldo Emerson, edited by Clarence Gohdes (Rudge).

In the *Worst Possible Taste*, by John Riddell [Corey Ford] (Scribners) is critical only by implication, belles-lettres only by stretching the term out of joint; but it is an amusing collection of burlesques on contemporary writers.

XXV. LITERATURE AND LANGUAGE
ENGLISH LANGUAGE AND LITERATURE

BY ALBERT CROLL BAUGH

PROFESSOR, UNIVERSITY OF PENNSYLVANIA

GENERAL

The present survey of American research in the field covered, like its predecessors, is selective. Many studies concerned with details too technical for the layman are omitted although they are often of considerable importance to the philologist and the literary historian. A complete list of such contributions will be found in the author's bibliography in the March supplement to the *Publications of the Modern Language Association (PMLA)*.^{*} The reader should also consult J. F. Willard's *Progress of Medieval Studies in the United States*, Bulletin No. 10 (Boulder, 1932), Hardin Craig's "Recent Literature of the English Renaissance" (*SP*), and R. S. Crane's "English Literature, 1660-1800: A Current Bibliography" (*PQ*), the last two of which include foreign as well as American work.

THE ENGLISH LANGUAGE

Of late years many new results in the physiology of speech sounds have been obtained by improved methods of investigation. C. E. Parmenter and S. N. Treviño have published a valuable study on "Vowel Positions as Shown by X-Ray" (*Qu. Jour. of Speech*). In the same journal L. W. Thonssen discusses "Thomas Hobbes' Philosophy of Speech." Aspects of the English vocabulary are treated by N. O. Halvorson, in *Doctrinal Terms in Aelfric's Homilies*, and Elsie Shanks, in "The Influence of Legal Research in Broadening English Vocabulary" (*MLN*). G. W. Gray's "Sidelights on the Pronunciation of English," (*Qu. Jour. of Speech*) is chiefly concerned with the reasons for not considering the dialect of southern England standard. Recent syntactical studies include D. T. Ordeman's "Position of Adverbs" in Old English (*JEGP*), E. E. Ericson's "Some Observations on New English Syntax" (*Anglia*), and G. O. Curme's

"Some Characteristic Features of Aspects in English" (*JEGP*). Four new dictionaries supplementary to the *Oxford Dictionary* are in preparation in this country, one of older Scottish, one of American English (both being edited by Sir William Craigie), one of Middle English (edited by Samuel Moore), and one of late Modern English (edited by C. C. Fries). Professor Fries has given a brief account of these projects, already well advanced, in "The Period Dictionaries" (*PMLA*). An important contribution to our knowledge of American English is the publication in *Dialect Notes* of R. H. Thornton's materials under the title "An American Glossary." Two instalments have appeared.

GENERAL LITERATURE

Foreign influences on English literature have been studied in Pauline Aiken's *The Influence of the Latin Elegists on English Lyric Poetry, 1600-1650, with Particular Reference to the Works of Robert Herrick* (Maine) and R. M. Lovett's "Goethe in English Literature" (*Open Court*). Barbara Swain writes of *Fools and Folly during the Middle Ages and the Renaissance* (Columbia). G. H. Gerould has published a general study of *The Ballad of Tradition*. To this may be added Louise Pound's protest "On the Dating of the English and Scottish Ballads" (*PMLA*) so generally in the fifteenth century when many of them are demonstrably later. The early history of the newspaper has been

^{*} Periodicals are cited under the following abbreviations, the reference being always to the volume for the year covered by this review:—*PMLA*, *Publications of the Modern Language Association of America*; *MP*, *Modern Philology*; *MLN*, *Modern Language Notes*; *MLR*, *Modern Language Review*; *JEGP*, *Journal of English and Germanic Philology*; *JP*, *Studies in Philology*; *PQ*, *Philological Quarterly*; *RES*, *Review of English Studies*; *RR*, *Romantic Review*. Titles appearing as theses or in the publications of universities are followed where possible by the name of the university.

dealt with by M. A. Shaaber in "The History of the First English Newspaper" (SP), while an important work of reference for American students is A. J. Gabler's "Check List of English Newspapers and Periodicals before 1801 in the Huntington Library" (*Huntington Libr. Bull.*). The connection between "The English Periodicals and the Novel" (*Papers of the Mich. Acad.*) is treated by C. M. Newlin. Robert M. Lovett and Helen S. Hughes have collaborated on *A History of the Novel in England*. Professor Lovett has also published a volume of essays under the title *Preface to Fiction: A Discussion of Great Modern Novels*. Ernest Bernbaum continues his useful annual survey of "Recent Works on Prose Fiction before 1800" (MLN).

OLD ENGLISH LITERATURE (450-1150)

Dorothy Bethurum's "The Form of Aelfric's *Lives of Saints*" (SP) is a valuable study of Aelfric's style and method, minimizing his indebtedness to Latin stylistic tradition. The same author has also discussed "Stylistic Features of the Old English Laws" (MLR). Among smaller contributions in the Old English field may be mentioned Kemp Malone's "Two Notes on *Widsith*" (MLN) and J. R. Hulbert's "A Note on Compounds in *Beowulf*" (JEGP). Professor Krapp's series of *Anglo-Saxon Poetic Records*, which was begun last year with the publication of the Junius MS., is continued in volume II, *The Vercelli Book*.

MIDDLE ENGLISH LITERATURE (1150-1500)

Authorship Discussion.—C. S. Baldwin has revised his earlier work on Middle English literature and published it with a new title, *Three Medieval Centuries of Literature in England*. J. C. Russell in "Alexander Neckham in England" (*Eng. Hist. Rev.*) shows that Neckham spent many years in England as a teacher at Oxford. H. B. Hinkley, "The Date of Layamon's *Brut*" (*Anglia*), argues on highly speculative grounds for a date shortly after Wace's *Roman de Brut*, and not

after 1173. The same author discusses "Science and Folklore in *The Owl and the Nightingale*" (PMLA). The Pearl poet has come in for considerable attention. Alice Buchanan contributes an important paper on "The Irish Frame-work of *Gawain and the Green Knight*" (PMLA). The Pearl has been edited by members of the Chaucer Course in Bowdoin College ("The Bowdoin Edition"). C. O. Chapman in "The Authorship of the Pearl" (PMLA) suggests as author one John of Erghome, an Augustinian Friar of York, but the suggestion will hardly carry conviction to most scholars. Among studies of *Piers Plowman* may be mentioned Oscar Cargill's "The Date of the A-Text of *Piers Plowman*" (PMLA), in which the opinion is advanced that the Prologue and First Vision were written as late as 1376; H. W. Troyer's "Who Is *Piers Plowman*?" (PMLA), interpreting the character as a multiple symbol, sometimes an individual man, sometimes mankind, sometimes Christ; and Roberta D. Cornelius' "*Piers Plowman* and the *Roman de Fauvel*" (PMLA), which directs attention to a slight resemblance between the two poems. Carleton Brown has published an extremely valuable collection of *Religious Lyrics of the XIIIth Century*. This is the second of a series of three volumes, that for the fourteenth century having appeared in 1924.

Chaucer.—American interest in Chaucerian scholarship continues undiminished. Three dissertations prepared at New York University have been published in a volume entitled *Three Chaucer Studies*. The volume includes "Chaucerian Problems: Especially the Petherton Forestership and the Question of Thomas Chaucer," by Russell Krauss; "The *Parlement of Foules* in Its Relation to Contemporary Events," by Haldeen Braddy; and "Observations on the Shifting Positions of Groups G and DE in the Manuscripts of the *Canterbury Tales*," by C. R. Kase. Germaine Dempster discusses *Dramatic Irony in Chaucer* (Stanford). Edith Rickert in "Chaucer at School" (MP) presents interesting data about the almonry school at St. Paul's. J. B. Severs has made

a careful study of "Chaucer's Source MSS. for the *Clerkes Tale*" (*PMLA*), while W. A. Cate discusses "The Problem of the Origin of the Griselda Story" (*SP*) which the Clerk tells. A. A. Hill contributes a paper on "Diomedes: The Traditional Development of a Character" to *Essays and Studies in English and Comparative Literature by members of the English Department of the Univ. of Michigan*. J. A. Work discusses a special point in "The Manciple's Prologue" (*SP*) and in "The Position of the Tales of the Manciple and the Parson on Chaucer's Canterbury Pilgrimage" (*JEGP*) opposes Root's suggestion that the Manciple's tale was to begin the homeward journey as the Parson's tale was to close it. A. C. Baugh prints 119 documents, hitherto unknown, of "Kirk's Life Records of Thomas Chaucer" (*PMLA*).

Drama.—In the field of the early drama M. G. Frampton, by his paper "Gilbert Pilkington Once More" (*PMLA*), has disposed of Cargill's proposal of Pilkington as the Wakefield genius. Karl Young, in "The Records of the York Play of the *Pater Noster*" (*Speculum*), prints the text of the return made by the York guild of the *Pater Noster* to the Chancery, January 21, 1389. Fletcher Collins, Jr., discusses "Music in the Craft Cycles" (*PMLA*) and R. Withington takes up once more the question of "The Ancestry of the 'Vice'" (*Speculum*).

Poems and Letters.—P. H. Nichols in "Lydgate's Influence on the Aureate Terms of the Scottish Chaucerians" (*PMLA*) emphasizes Lydgate's influence, rather than Chaucer's, in inspiring these stylistic artificialities. A. C. Baugh in "Osbert of Clare, the Sarem Breviary, and the Middle English *Saint Anne* in Rime Royal" (*Speculum*) points out the source closely translated in this recently printed poem. Finally we may call attention to two interesting contributions of Edith Rickert, "Some English Personal Letters of 1402" (*RES*) and "King Richard II's Books" (*Library*), in the latter of which she prints a list of books owned by him, mostly romances in French.

MODERN ENGLISH LITERATURE (SINCE 1500)

General.—The scholarship in Elizabethan literature is so extensive that only an account of the more interesting developments can be attempted. Katherine Maynard traces the course of "Science in Early English Literature 1500 to 1650" (*Isis*). Pearl Hogrefe discusses "Sir Thomas More's Connection with the Roper Family" (*PMLA*). Anna J. Mill gathers together the facts concerning "Representations of Lyndsay's *Satyre of the Thrie Estaitis*" (*PMLA*). Marguerite Hearsey gives an interesting account of "The MS. of Sackville's Contribution to the *Mirror for Magistrates*" (*RES*) in St. John's College, Cambridge, with a hundred lines hitherto unprinted, while Willard Farnham has compiled an annotated list of "The Progeny of A Mirror for Magistrates" (*MP*). John E. Hankins' "A Note on Gascoigne's Biography" brings to light the record of the poet's marriage, and Tucker Brooke prints seven unpublished poems of "William Gager to Queen Elizabeth" (*SP*). E. B. Reed has edited for the Huntington Library *Christmas Carols Printed in the Sixteenth Century*. Louis B. Wright reconstructs the career of "Henry Roberts, Patriotic Propagandist and Novelist" (*SP*). Thorleif Larsen would place "The Date of Peele's *Old Wives Tale*" (*MP*) between January, 1593, and May, 1594. C. R. Baskervill describes "A Prompt Copy of *A Looking Glass for London and England*" (*MP*) recently acquired by the University of Chicago. Chauncey Sanders has published a monograph on *Robert Greene and the Harveys* (Indiana). W. D. Briggs adds to his previous discussion of "Sidney's Political Ideas" (*SP*).

Spenser.—Raymond Jenkins in "Spenser and the Clerkship in Munster" (*PMLA*) offers new biographical details, and Evelyn M. Albright differs with Miss Bennett over the question of "Spenser's Connections with the Letters in Gabriel Harvey's 'Letter Book'" (*MP*). C. B. Millican has written on *Spenser and the Table Round: A Study in the Con-*

temporaneous Background for Spenser's Use of the Arthurian Legend (Harvard). The late Professor Greenlaw's *Studies in Spenser's Historical Allegory* has been published in the *Johns Hopkins Monographs in Literary History*. Some idea of the many aspects of Spenser's work that have received attention may be gained from a mere listing of the more important articles: L. Blair, "The Plot of the *Faerie Queene*" (*PMLA*), W. C. Martin, "The Date and Purpose of Spenser's *Veue*" (*PMLA*), F. M. Padelford, "Spenser's Fowre Hymnes: A Resurvey" (*SP*), A. C. Judson, "Spenser's Theory of Courtesy" (*PMLA*), D. C. Boughner, "The Psychology of Memory in Spenser's *Faerie Queene*" (*PMLA*), H. S. V. Jones, "Magnanimity in Spenser's Legend of Holiness" (*SP*), Josephine W. Bennett, "Spenser's Muse" (*JEGP*) and the same author's "Spenser's Garden of Adonis" (*PMLA*), which opposes Greenlaw's view of Lucretian influence.

Shakespeare.—Robert A. Law has reviewed "Some Shakespeare Studies of 1930 and 1931" (*MLN*), and Samuel A. Tannenbaum has continued his "Annual Bibliography of Shakesperiana for 1931" (*Shakespeare Assoc. Bull.*). Textual studies include C. A. Greer's "The Relation of *Richard III* to *The True Tragedy of Richard Duke of York* and *The Third Part of Henry VI*" (*SP*), Barbara D. Simison's "Stage Directions: A Test for the Playhouse Origin of the First Quarto *Henry V*" (*PQ*), and K. W. Cameron's "*Othello*, Quarto 1, Reconsidered" (*PMLA*), the last a vigorous defence of the quarto text. In "The Date of *Hamlet*" (*JEGP*) H. D. Gray argues for the summer of 1601 for the composition and first performance of *Hamlet*. O. J. Campbell discusses "The Italianate Background of *The Merry Wives of Windsor*" (*Essays and Studies, Univ. of Michigan*), and H. C. Lancaster in "Alexandre Hardy and Shakespeare" (*Todd Memorial Volumes*) and "Hermione's Statue" (*SP*) notes some interesting parallels to Shakespeare in contemporary French drama.

Massinger.—Of Shakespeare's later contemporaries Massinger has come in for considerable attention. Benj. T. Spencer has edited *The Bondman* (Princeton). W. G. Rice in "The Sources of Massinger's *The Renegado*" (*PQ*) notes Massinger's possible indebtedness to English books dealing with Mohammedan customs and Turkish history, and F. L. Jones in "An Experiment with Massinger's Verse" (*PMLA*) points out an interesting peculiarity useful as a test of authorship.

General questions affecting seventeenth century literature are treated in Roberta F. Brinkley's *Arthurian Legend in the Seventeenth Century* (Johns Hopkins), R. F. Jones' "Science and Language in England of the Mid-Seventeenth Century" (*JEGP*), J. F. Fulton's "Robert Boyle and His Influence on Thought in the Seventeenth Century" (*Isis*), and W. L. Ustick's two papers on courtesy books, "Advice to a Son: A Type of Seventeenth Century Conduct Book" (*SP*) and "Changing Ideals of Aristocratic Character and Conduct in Seventeenth-Century England" (*MP*). Leota S. Willis has written a dissertation on *Francis Lenton, Queen's Poet* (Pennsylvania). C. L. Day prints some "New Poems by Randolph" (*RES*) and in "Randolph and Pryune" (*MP*) notes further revisions in *The Muses' Looking-Glass* (*MP*). A. G. Chester contributes a full study of *Thomas May: Man of Letters, 1595-1650* (Pennsylvania), Wm. B. Gates offers a study of *The Dramatic Works and Translations of Sir William Lower with a reprint of "The Enchanted Lovers"* (Pennsylvania), and Wm. Charvat prints new biographical data about "Thomas Bancroft" (*PMLA*).

Milton.—E. E. Stoll considers "Milton a Romantic" (*RES*), James Whaler studies at length the "Animal Simile in *Paradise Lost*" (*PMLA*), and Grant McColley suggests "A Theory of a Plurality of Worlds as a Factor in Milton's Attitude toward the Copernican Hypothesis" (*MLN*). The Columbia University edition of Milton has now reached volume six.

Seventeenth Century. — Wm. S. Clark considers "The Definition of the 'Heroic Play' in the Restoration Period" (*RES*). Luella M. Wright offers a dissertation on *The Literary Life of the Early Friends 1650-1725* (Columbia). Sarah L. C. Clapp discusses "Subscription Publishers prior to Jacob Tonson" (*Library*). T. P. Haviland's *The Roman de Longue Haleine on English Soil* (Pennsylvania) is a dissertation on the heroic romance. Clara Marburg's *Sir William Temple: A Seventeenth Century "Libertin"* is the outgrowth of a Chicago dissertation. New biographical material on Dryden is offered by Charles E. Ward in "Was John Dryden Collector of Customs?" (*MLN*) and "A Biographical Note on John Dryden" (*MLR*). Daniel M. McKeithan sees "The Occasion of *MacFlecknoe*" (*PMLA*) in an insult contained in the dedication to *The History of Timon of Athens, the Man-Hater* (1678). L. I. Bredvold studies the "Political Aspects of Dryden's *Amboyna* and *The Spanish Friar*" (*Essays and Studies, Univ. of Michigan*).

Eighteenth Century. — R. S. Crane's *A Collection of English Poems 1660-1800* should be in the hands of every student of eighteenth century literature. C. L. Day in "Pills to Purge Melancholy" (*RES*) gives a full account of the various volumes and editions from 1698 to 1720. Austin Warren writes of "Henry Layng, Assistant in Pope's *Odyssey*" (*RES*) and George R. Potter contributes much new matter on "Henry Baker, F. R. S. (1698-1774)" (*MP*). Arthur O. Lovejoy discusses "The Parallel of Deism and Classicism" (*MP*). Raymond D. Havens considers "Primitivism and the Idea of Progress in Thomson" (*SP*). W. A. Eddy's *Satires and Personal Writing by Jonathan Swift* is a well-edited selection. R. W. Babcock discusses "Swift's Conversion to the Tory Party" (*Essays and Studies, Univ. of Michigan*) while C. M. Webster examines "Swift's *Tale of a Tub* Compared with Earlier Satires of the Puritans" (*PMLA*). Volumes 13 and 14 of the *Private Papers of James Boswell* in

Colonel Isham's collection have appeared during the year. Howe Martyn's "Samuel Johnson, Critic of Poetry" (*Queen's Quar.*) and James E. Cox's "The Independent Boswell and the Capricious Dr. Johnson" (*Quar. Jour., Univ. of No. Dakota*) present interesting points of view. L. M. Krapp in "Smollett's Early Years in London" (*JEGP*) gathers new data from parish rate-books showing Smollett's places of residence from 1744 to 1750. Howard Buck in "Smollett and Dr. Akenside" (*ibid.*) supports the view that Akenside is satirized in *Peregrine Pickle*. W. M. Crittenden has published a dissertation on *The Life and Writings of Mrs. Sarah Scott, Novelist (1723-1795)* (Pennsylvania), G. W. Gignilliat, Jr., one on *The Author of Sanford and Merton: A Life of Thomas Day, Esquire* (Columbia). Interesting new matter bearing on the "Junius" question is brought forward in Frank Monaghan's "A New Document on the Identity of 'Junius'" (*Jour. Mod. Hist.*), which is supplemented by Helen B. Bates in "Some Notes on Thomas Mante (alias 'Junius'?)" (*ibid.*). J. D. Ferguson writes of "Some Aspects of the Burns Legend" (*PQ*) and "The Suppressed Poems of Burns" (*MP*), and Franklyn B. Snyder has published a new and valuable *Life of Robert Burns*.

Nineteenth Century. — The Scott centenary has called forth a number of appreciations, among which may be mentioned George M. Harper's "Scott's Novels: An American View" (*Quar. Rev.*). The expected edition of the *Unpublished Letters of Samuel Taylor Coleridge* by Earl L. Griggs has appeared in two volumes. N. P. Stallknecht discusses "The Moral of the *Ancient Mariner*" (*PMLA*) and B. R. McElderry, Jr., "Coleridge's Revision of *The Ancient Mariner*" (*SP*). G. Wilson Knight offers an essay on "Wordsworth's Vision of Immortality" (*Univ. of Toronto Q.*) and John D. Rea adds to the discussion two brief papers "Wordsworth's Intimations of Palingenesia" (*RES*) and "Intimations of Immortality Again" (*PQ*). C. W. Roberts traces "The Influence of

Godwin on Wordsworth's Letter to the Bishop of Llandoff" (*SP*) while Abbie F. Potts discusses "The Spenserian and Miltonic Influence in Wordsworth's *Ode and Rainbow*" (*SP*). Two interesting books on Shelley are to be noted: Bennett Weaver's *Toward the Understanding of Shelley* (Michigan) and Michela Renzulli's *La Poesia di Shelley*. Chas. F. Harrold attempts to define "The Mystical Element in Carlyle (1827-34)" (*MP*). Henry Ladd offers an interesting volume called *The Victorian Morality of Art: An Analysis of Ruskin's Esthetic*. W. L. Phelps' "Notes on Browning's *Pauline*" (*MLN*) includes extracts from Mill's notes on the poem and an unpublished letter of Browning's concerning it. Arthur Deering has published a dissertation on *Sir Samuel Ferguson, Poet and Antiquarian* (Pennsylvania). Morley Roberts gives an account of his "Meetings with Some Men of Letters" (*Queen's Quar.*), reminiscences of George Meredith and Conan Doyle. A pleasant and useful anthology of

the period is T. M. Parrott and Wil-lard Thorp's *Poetry of the Transition 1850-1914*. S. M. Tucker's *Modern Plays* is a well chosen selection.

Surveys.—Readers of modern bibliography will find much interesting observation in Howard M. Jones's "Methods in Contemporary Biography" (*English Jour.*) and in M. Hartwell's study of "Lytton Strachey" (*Univ. of Calif. Chron.*); those interested in the drama may consult Pierce Butler's "Barrie: The Playwright" (*So. Atl. Q.*) and W. H. Fyfe's "George Bernard Shaw" (*Queen's Quar.*); readers of current fiction should note Joseph W. Beach's *The Twentieth Century Novel: Studies in Technique*; students of poetry will find suggestive surveys in Lionel Stevenson's "The Ideas in Kipling's Poetry" (*Univ. of Toronto Q.*), C. G. Herbert's "John Masefield: Poet Laureate" (*Dalhousie Rev.*), and in George B. Saul's *A. E. Coppard: His Life and His Poetry to the Publication of the "Biography"* (Pennsylvania).

GERMANIC LANGUAGES AND LITERATURE

BY FRIEDRICH WILHELM KAUFMANN

ASSOCIATE PROFESSOR, SMITH COLLEGE

RESEARCH

Volume and Intensity.—Whereas in previous years, the reviewer faced the difficulty of not finding enough material to report, he is now confronted with a somewhat unexpected activity, especially in the field of the history of German literature. Even as this report is written there are new and worth while books being released from the press. Although the standard of some publications still suffers from a lack of philosophical penetration of the subject, we can, in general, be satisfied with the increasing volume and intensity of research in our field.

The Edward Ballad.—In his study *Edward and Sven i Rosengard* (Univ. of Chicago Press), Archer Taylor works out a method to ascertain the relation of different versions of a bal-

lad to one another by a meticulous geographical, chronological, and stylistic analysis of the Edward ballad. He traces its migration from Great Britain to Scandinavia, and from there to Finland, showing also the development and vulgarization from the 15th century to the versions still alive.

Hrafnkels Saga.—F. St. Cawley edited the complete text of *Hrafnkels Saga Freygoda* (Harvard Univ. Press). In the introduction he discusses, on the basis of recent investigations, the origin and the character of the family saga as a literary genre, interprets the *Hrafnkels Saga* as a classic example of the type, and adds a thorough exposition of the syntax of Old Norse narrative prose.

Kant.—Under the title *Immanuel Kant in England 1793-1838* (Prince-

ton Univ. Press), R. Wellek investigates Kant's fortunes and influence in England from the first independent publication on Kant in 1796 to the first complete translation of the *Critique of Pure Reason* in 1838. Especially valuable are the chapters on the relation of Kant to Coleridge and to the Romantic generation. He also shows the unsuccessful strife for an understanding of Kant's meaning by Hazlitt, De Quincey, and others.

Herder.—R. Ergang in *Herder and the Foundations of German Nationalism* (Columbia Univ. Press) shows Herder differing from the philosophical and political ideas of the Enlightenment and preparing the attitude of nationalism that was brought to its full development in the Romantic period.

Lavater Correspondence.—M. Schütze edits the recently discovered *Correspondence between Lavater and Elisa von der Recke* (*Germanic Review*), which had been known so far only in an incomplete and corrupted form.

GOETHE CENTENARY

Hauptmann Tribute.—The commemoration of the hundredth anniversary of Goethe's death gave occasion for a number of contributions. Thus, the *Germanic Review* published "Gerhart Hauptmann's Goethe Speech" delivered at Columbia University in which the modern poet acknowledges his debt to his great model and defines his own place in the present world.

Studies of Goethe.—The University of Chicago Press secured the publication of Barker Fairley's *Goethe: As Revealed in His Poetry*, in which attention is focussed on the poetical expression of the work rather than on the moral derived from it. Other enlightening contributions on Goethe are collected in the *Germanic Review*, as e.g., "Goethe in Italy," "Goethe and Longfellow," the problem of individual freedom in the humanists and in Goethe, form and proportion in Goethe's dramas.

SCHILLER

The Prestige of Schiller in England, 1788-1859 (Columbia Univ. Press)

was traced by Frederic Ewen. He examines the successive aspects under which Englishmen came to view the German dramatist and philosopher, and accounts for the valuation which took place during the period under examination. Ewen's analysis correlates the effects on authors who were interested in Schiller, as Mackenzie, Hazlitt, De Quincey, Shelley, Byron, Coleridge, and others.

LUDWIG TIECK

E. H. Zeydel, *Ludwig Tieck and England* (Princeton Univ. Press) contains a considerable amount of first publications, and thereby reveals a new insight into Tieck's qualities as a critic. He shows his passionate interest in the Elizabethan drama, his initiative in the Shakespeare translation, and his endeavor to establish a more critical approach to Shakespeare's work as a whole and in detail. A. E. Lussy gives a detailed analysis of *Tieck's Romantic Irony* (Chapel Hill), especially emphasizing the poet's relation to Cervantes, Sterne, and Goethe.

HEINRICH VON KLEIST

J. C. Blankenagel in his book *The Dramas of Heinrich von Kleist* (Harvard Univ. Press) treats Kleist's dramas not so much as the poet's attempt to solve the essential problem of existence itself as from the viewpoint of psychological biography and literary history. In the psychological analysis he presents Kleist as of profoundly emotional temperament, but he avoids as distorting the overemphasis on the abnormal and neurotic. He sets forth a development from the tragedy of the supremacy of emotion and intuition to the more submissive form of a drama, in which the hero gives himself up to the service of an ideal transcending the individual, thereby accepting the idealistic interpretation of Kleist's drama.

FRIEDRICH HEBBEL

F. Zieglschmid, *Beiträge zu Friedrich Hebbel's Charakterkunde* (*Hebbelforschungen* vol. 22) applies the method of modern psychology to Hebbel, the man, basing his conclusions mainly on the diary and the letters.

ROMANCE LANGUAGES AND LITERATURES

As main constituents of the character appear the consciousness of inferiority during his infancy and boyhood, and the inflation of the Ego in its various forms.

CONRAD FERDINAND MEYER

A. Burkhard, *Conrad Ferdinand Meyer* (Harvard Univ. Press), approaches the problematic character of Meyer from his style. He points out the author's almost fastidious choice of words and the extreme compactness and grandeur of his style, his efforts to create concrete forms and moving figures. Then he proceeds to bring out the harmony of this style with his theme. From the contrast of the author's character with the vigor of his work, he concludes with d'Harcourt that Meyer's work is an expression of his longing to compensate for the passivity and weakness of his character.

CRITICISM

Zola.—In his book *German Criticism of Zola 1875-1893* (Columbia Univ. Press) W. H. Root shows three distinct phases in the attitude of German criticism of Zola at the time of the publication of his work in Germany, the hostility towards his theory and practice, the rise of German Naturalistic criticism, and the non-naturalistic conception of Zola.

Schnitzler.—Sol Liptzin in his book on *Arthur Schnitzler* (Prentice Hall) combines and completes the results of a series of articles on the origin and development of the drama of the late Viennese author, being especially qualified for this work by personal friendship with the poet and his access to unpublished material.*

*For complete bibliography of books and articles see the *Publications* of the Modern Language Association, March issue.

ROMANCE LANGUAGES AND LITERATURES

BY HIRSCH HOOTKINS

INSTRUCTOR, UNIVERSITY OF MICHIGAN

GENERAL

Bibliographies.—Studies on Italian topics which appeared in 1931 are listed by J. E. Shaw (*Ital.*)* W. L. Bullock compiled a bibliography of Italian Renaissance studies in 1931 (*SP*), F. K. Furgeon one of Fanny de Beauharnais (*MP*), and M. P. Gonzalez one of *Libros y Autores Cubanos*, 1927-1929, (*Hisp*). Brief, but valuable bibliographical material was published by C. P. Merlino on Castiglione's *Cortegiano* (*Ital.*) and by Wm. A. Nitze on the Newberry Col-

lection of Arthuriana (*MP*). H. Smith has a note on Voltaire (*MLN*), and M. Garner on Marcel Proust (*MLN*).

Linguistics.—A very instructive and well written article, "A Preliminary Study of Trobar e Entendre" (*RE*), is presented by A. H. Schutz. Other articles worthy of note are: "'Dead Tenses' in Present Day French Drama" (*RE*), by C. H. Bissell, and "A Brief Outline of Foreign Influences on the Neapolitan Dialect" (*RE*), by D. Zinno. C. C. Rice presents "Spanish Etymologies" (*L*). Of great interest is the volume by R. Levy: *Recherches Lexicographiques sur d'Anciens Textes Francais d'Origine Juive* (*JHP*).

FRENCH

Medieval.—The Arthurian cycle is well represented. Aside from an interesting article by M. Williamson on "The Dream of Cahus in Perlesvaus" (*MP*), several books were

*Abbreviations: Harv., Harvard University Press; Yale, Yale University Press; Col., Columbia University Press; J H S, Johns Hopkins Studies in Romance Literatures and Languages; Chl., University of Chicago Press; P M L A, Publications of the Modern Language Association; *Hisp*, *Hispania*; M L J, *Modern Language Journal*; *Ital.*, *Italia*; S P, *Studies in Philology*; S, *Speculum*; R R, *Romanic Review*; P Q, *Philological Quarterly*; M P, *Modern Philology*; L, *Language*; M L R, *The Modern Language Review*; M L N, *Modern Language Notes*.

given over to this genre. The most notable contributions were: *Le Haut Livre du Graal, Perlesvaus*, by W. A. Nitze and T. A. Jenkins, (Chi); *Gilgois a French Arthurian Romance of the 13th Century* (Harv.) by C. H. Livingston; *The Elucidation, a Prologue to the Conte del Graal*, by A. W. Thompson (Institute of French Studies, N. Y.). Other useful volumes on the literature of this period were: *The Life of Saint Alexis*, by D. Héry, and *Le Conte dou Baril* (Yale), by R. C. Bates. Of the other articles which appeared, two were concerned with Villon: The "Roy de Chippre," (RR) by J. L. La Monte and "Villon's Lais and his Journey to Anger," (MLN) by G. Frank. "New Thoughts on Marie de France" (MP), by F. M. Warren; "The Cues in Aucassin et Nicolette" (MLN), by G. Frank, and "On the Date and Authorship of the Chanson de Guillaume" (MP), by F. M. Warren were worthy of mention. R. H. Wilson contributed a comparative article: "Malory and the Perlesvaus" (MP).

Seventeenth Century.—This period was represented by "Soufflets et Coup de Poing dans la Comedie du XVIIe Siècle" (MLN), by M. Baudin. H. C. Lancaster published the second volume of his work on *A History of French Dramatic Literature in the Seventeenth Century* (JHP).

Eighteenth Century.—On this period J. L. van Roosbroeck contributed a worthwhile article on "Additional Persian Letters before Montesquieu" (RR). In a short but useful note M. Chazin offers new data toward determining the authorship of *Le Chantre d'Odérachi* (MLN). Voltaire forms the subject of discussion of two interesting articles: "The composition of Voltaire's 'Candide'" (MLN), by G. R. Havens, and "Some Forgotten Letters of Voltaire" (MLN), by I. O. Wade. Unpublished letters of Pierre Bayle were edited by G. L. Gerig and G. L. van Roosbroeck (RR), and by R. L. Hawkins (RR).

Nineteenth Century.—Students of Hugo will find the following three articles of interest: "L' événement

and l' Expiation" (MLN), by E. M. Grant: "How Victor Hugo Altered the Characters of Don César and Ruy Blas" (PMLA), by O. H. Moore, and the brief but interesting note on "Voltaire, A Source for Hugo's 'Sultan Mourad'" (MLN), by C. W. Bird. Short but worthy of mention is *Hernani*, IV 2 (MLN), by D. O. Evans. H. Peyre has an able critical survey on the "Travaux Récents Sur le Parnasse" (MP). An outstanding volume on *Studies in Balzac's Realism* (Chi) was published by Dargan, Crain, and others. A "Commentary on Certain Published Letters of Honoré de Balzac" (MP) was the useful work of W. S. Hastings. Two well written articles on Stendhal (MP) were contributed by R. Vigneron. J. Canu contributed an interesting article: "Flaubert et la Phrase Finale d'Une Vie" (MLN). D. H. Carnahan contributed a very interesting article: "The Attitude of the French Royalist Press Towards Romanticism During the Revolution" (RR).

Contemporary Literature.—W. L. Schwartz contributed a very good article on "Some Twentieth Century Arts Poétiques" (PMLA). M. Baudin's article on "Frères Aînés de Jacques Vignot de Dumas Fils" (MLN) is a welcome contribution. Anatole France is represented by two articles: "Anatole France and Poetry" (PMLA), by A. Schaffer, and "A Note on the Technique of Anatole France" (MLN), a very good note by W. C. Holbrook.

ITALIAN

Dante.—H. D. Austin studied "The Arrangement of Dante's Purgatorial Reliefs" (PMLA). The following articles on Dante deserve mention: "Dante and the 'Visio Pauli'" (MLN), by H. T. Silverstein; "The Submerged," *Inf.*, XX, 3, (RR), by H. D. Austin; "Mohammed and His Followers in Dante" (MLN), by J. S. P. Fatlock, and "Two Notes on Dante's 'Convivio, IV, 23'" (S), by H. T. Silverstein.

Petrarch.—The volume *Love Rimes of Petrarch* (Dragon Press), translated by M. Bishop, and an ex-

ceedingly interesting article by E. H. Wilkins: *Petrarch's First Collection of His Italian Poems* (S) deserve mention.

Modern.—C. R. Miller studied Alfieri's literary references to America (PQ); likewise for Francesco Benedetti (RR) and Pasquale de Virgili (RR), while J. O'Brien has an interesting note on an early volume of Grazia Deledda's first work (Ital.).

SPANISH

Medieval.—J. H. Nunemaker contributed an interesting study of lapidaries in "An Additional Chapter on Magic in Mediaeval Spanish Literature" (S). The drama of this period was represented by three good articles: "Notes sobre el Misterio de Elche Y Otros Dramas Sagrados de Valencia" (Hisp.), by H. Corbato; "The Mystery of Elche in 1931" (Hisp.), by D. F. Ratcliff, and the brief note on "Timoneda's (?) Auto de la Quinta Augustia" (MLN), by J. E. Gillet.

Golden Age.—One of the best contributions to this period was the article by W. C. Peebles: "Democratic Tendencies in the Spanish Literature of the Golden Age" (Hisp.). W. A. Whatley discussed "The Date of Lope de Vega's *De Cosario A Cosario*" (RR); C. E. Anibal studied the variants of Lope's "Dozena Parte" (MLN), and J. G. Fucilla contributed "Notes on Spanish Renaissance Poetry" (PQ).

Modern.—"La Infancia de Jesu-Christo" (PQ) is the title of a contribution by J. E. Gillet. "An Unknown Poem" by García Gutierrez (PQ) was contributed by P. P. Rogers. R. C. Gillespie studied "Ramón Pérez de Ayala—Precursor Literario de la Revolución" (Hisp.), and A. K. Shields wrote on "Additions to the Epistolario Inédito of Ayala" (RR). A glimpse into the Historical Bases of Martínez de la Rosa's "Aben Humeya" (RR), by R. Avrett is a welcome contribution. Two very good articles were dedicated to Galdós: "Galdós and Mesonero Romanos" (RR), by H. C. Berkowitz, and "Galdós and The New Humanism" (MLN), by F. M. Kercheville.

Three other articles deserve mention: "A Note on the Neo-Classic Controversy in Spain" (PQ), by P. P. Rogers; "The Sand-Chopin Episode in Los Muertos Mandan" (Hisp.), by O. K. Lundberg, and "A Note on Larra's El Ladrón" (MP), by J. H. Nunemaker.

Spanish America.—J. R. Spell contributed two articles "Juan Diaz Covarrubias: A Mexican Romantic" (Hisp.), and "Some Little Known Plays of Gorostiza" (RR). Two other interesting articles were: "Traditional Spanish Ballads in New Mexico" (Hisp.), by A. M. Espinosa, and "Some Curiosities of Spanish Colonial Poetry" (Hisp.), in which I. A. Leonard made a study of inanities of poetry.

Comparative Literature.—In this field fourteen articles were contributed, one of which: "Malory and the Perlesvaus" (MP) has already been mentioned. K. M. Lynch studied *Pamela Nubile, L'Écossaise*, and *The English Merchant* (MLN) in an exceedingly interesting manner. "Smollett and Le Sage's *The Devil upon Crutches*" (MLN) was the contribution of L. M. Knapp. Two articles of special interest to Americans were: "L'État des Travaux Sur Edgar Allen Poe en France" (MP), by C. E. Engel, and "Cooper and Balzac: The Headsman" (MP), by T. R. Palfrey. M. H. Jessup studied the source of Routrou's *Dom Bernard de Cabrère* (MLN); R. C. Williams wrote on "French Allusions to Tasso" (MLN), and E. H. Wilkins contributed an article that should be welcome: "Vellutello's Map of Vaucluse" and the "Carte de Tendre" (MP). "Góngora as a Precursor of the Symbolists" (Hisp.), by J. Warshaw is a creditable study. E. H. Hespelt made an analysis and critical investigation of "The Translated Dramas of Mariano José de Larra and their French Originals" (Hisp.), while J. G. Fucilla studied, in a very interesting article, the influence of Petrarch and the Petrarchists on "The Poetry of Lope de Vega" (Hisp.). J. Brooks contributed a welcome comparative study of "La

Verdad Sospechosa of Alarcón" and the "Adelphoe of Terence" (*Hisp.*). Studies on Hispano-Russian topics were offered by G. Portnoff in: "The Beginnings of The New Idealism in The Works of Tolstoy and Galdós" (*RR*), and "The Influence of Tolstoy's *Anna Karenina*" on Galdós' "*Realidad*" (*Hisp.*).

Miscellaneous. — An interesting article contributed by R. M. Peterson is: "Echoes of the Italian Risorgimento in Contemporaneous American Writers" (*PMLA*). A. L. Owen offered his ideas "Concerning the

Ideology of Pío Baroja" (*Hisp.*) in a good article. "Variaciones sobre el Tema de Don Juan" (*Hisp.*), by J. M. de Osuna is a very interesting contribution. Of special interest to students of modern language is A. O. Lovejoy's, "The Parallel of Deism and Classicism" (*MP*). B. Young discussed Romanticism in France with special reference to the drama (*MLJ*). Two interesting articles on folk-lore were: "A Spanish Legend in Iceland" (*PQ*), by A. H. Krappe, and "The Problem of the Origin of the Griselda Story" (*SP*), by W. A. Cate.

LATIN LITERATURE

BY JOHN C. ROLFE

PROFESSOR, UNIVERSITY OF PENNSYLVANIA

RESEARCH

Scope and Trends.—It may fairly be said that independent investigation and the publication of its results are active in Latin Literature, in the comprehensive sense in which the term is here used. The increase in the contributions by teachers in the secondary schools is noteworthy and promising. Such work is stimulating and helpful to those who take part in it. The amount of addition to our knowledge of the subject naturally differs, and to a greater degree its interest to the general public. At times, it must be confessed, the strong pressure to appear in print results in premature or unnecessary publication. Problems of grammar and linguistics, which formerly held a prominent place in the work of American scholars, are to a great extent left to the comparative philologist, and there is a marked trend towards the various aspects of Roman life and civilization.

Qualifications and Output.—In appraising the output two things must be considered; first, that effective investigation in this subject demands long and thorough preparation, requiring the mastery of two ancient languages and a reading knowledge of two or three modern tongues; second, that research cannot always be

measured by publications, still less by volumes or pages; that sometimes an article, or even a note, in a periodical represents more intensive investigation than a book of many pages. With these qualifications it may be said that all the work here listed, with a few obvious exceptions, belongs under the general head of research. Considerations of space make it impossible to include all such publications.

THE LATIN WRITERS

* In *C. P.* xxvi, 412 ff. W. F. J. Knight gives "Epilegomena to the 'Wooden Horse'" (see *A. Y. B.*, 1931, p. 828). N. W. De Witt writes of "Virgil and Epicureanism" (*C. W.* xxv, 89 ff.). H. C. Nutting, on "Vergil Aen. xii, 384 ff." and on "Propertius i, 16, 41-42" (*id*, 103); Thelma De Graff, of "Antigone and Dido" (*id*, 148 ff.); W. P. Clark, of "The Duration of the Action in

*Periodicals are abbreviated as follows: *A. Y. B.*, *American Year Book*; *A. J. P.*, *American Journal of Philology*; *C. J.*, *Classical Journal*; *C. P.*, *Classical Philology*; *C. W.*, *Classical Weekly*; *P. Q.*, *Philological Quarterly*; *H. S. C. P.*, *Harvard Studies in Classical Philology*; *T. A. P. A.*, *Transactions of the American Philological Association*; *U. O. P.*, *University of California Publications in Classical Philology*. Titles of books are italicized. Those of periodical articles are put in quotation marks.

Aeneid IV" (*C. J.*, xxvii, 497 ff.); A. M. Young, of "Schematized Word Order in Vergil" (*id.*, 515 ff.); C. J. Fordyce, of "Octavius in the Culex" (*C. P.*, xxvii, 174 ff.); and C. P. Bill contributes "Vergiliana" (*id.*, 168 ff.). In connection with Caesar, *De Bell Gall.* i, 10, T. W. Valentine considers "The Effect of Climate on Roman History" (*C. W.* xxv, 49 ff.). W. M. Green writes of "Julius Caesar in the Augustan Poets" (*C. J.* xxvii, 405 ff.); V. D. Hill, of "Background versus Battleground in Caesar's *Gallie War*" (*id.*, 581 ff.); H. V. Canter, of "*Digressio* in the Orations of Cicero" (*A. J. P.* liii, 351 ff.). Under the title of "Pro Horatii Bimillennio" M. Evelyn Dille gives a collection of *sententiae* from the poet's works (*C. J.* xxvii, 509 ff.). H. C. Nutting discusses "Ovid, *Tristia*, ii, 511-514" (*C. W.* xxv, 111 f.). R. F. Thomason, *The Priapea and Ovid* (Nashville, 1931); J. B. Stearns, "Lucretius and Memmius" (*C. W.* xxv, 67 f.). H. C. Nutting gives us "The Hero of the Pharsalia" (*A. J. P.* liii, 41 ff.), "Pharsalia nostra" (*C. W.* xxv, 173 f.), "Notes on the Pharsalia" (*C. P.* xxvii, 243 ff.), continues his "Comments on Lucan" (*U. C. P.* xi, 8, 249 ff.), and writes of "Martial 11.18" (*C. W.* xxv, 96). J. W. Spaeth, Jr., treats "Martial and the Roman Crowd" (*C. J.* xxvii, 244 ff.); W. H. Alexander, "A difficult Passage in Seneca, *Epist. morales*, xi, 9-10" (*A. J. P.* liii, 262 ff.).

PALAEOGRAPHY AND TEXT CRITICISM

In *C. P.* xxvii, 1 ff. B. L. Ullman publishes the last of his papers on "Classical Authors in Mediaeval Florilegia"; the full set has been included in one volume for private circulation. W. L. Westermann and C. W. Keyes give us *Tax Lists of Transportation Receipts from Theadelphia* (Columbia Univ. Press, 1932). A. M. Young makes "A new study of the Paris Livy, 5726 T" (*C. P.* xxvii, 243 ff.), H. R. Fairclough furnishes "Some Notes on the Value of the Medicean Codex of Vergil" (*id.* 399 ff.) and C. R. Morey writes of "The Vatican

Terence" (*C. P.* xxvi, 374 ff.). In Suetonius, *Vesp.* 12 K. Scott would insert *cupide*, or something similar, in place of *non statim* (*C. P.* xxvii, 82 ff.), but J. Northup regards the sentence as complete without either; he would transfer the following sentence to the beginning of ch. xiii (*A. J. P.* liii, 257 ff.). W. A. Oldfather discusses "Apul. *Met.* 5.6" (*C. P.* xxvii, 403); H. M. Griffin, "Tac. *Agr.* xv. 5" (*id.* 405 f.). B. L. Ullman adds *Ancient Writing and Its Influence to the Series of "Our Debt to Greece and Rome."*

RELIGION AND MYTHOLOGY

To the series of "Our Debt to Greece and Rome" have been added *Ancient Beliefs in the Immortality of the Soul*, by C. H. Moore and *Survivals of Roman Religion* by G. Laing. C. A. Spencer discusses "The Literary Lineage of Cupid" (*C. W.* xxv, 121 ff., 129 ff., 139 ff.); K. Scott, "Humor at the Expense of the Ruler Cult" (*C. P.* xxvii, 317 ff.), "Chap. ix of the *Res Gestae* and the Ruler Cult" (*id.*, 248 ff.), and "The Significance of Statues of Precious Metals in Emperor Worship" (*T. A. P. A.* lxii, 101 ff.); Helen Law, "The name Galatea in the Pygmalion Myth" (*C. J.* xxvii, 337 ff.). J. A. V. Fine contributes "A Note on the Compitalia" (*C. P.* xxvii, 268 ff.); E. E. Burriess, *Taboo, Magic, Spirits* (Macmillan); Gertrude Grether, a study of "The Pompeian *Ministri*" (*C. P.* xxvii, 59 ff.).

HISTORY AND GEOGRAPHY

R. M. Greer contributes "Notes on the Early Life of Nero" (*T. A. P. A.* lxii, 57 ff.); J. H. McCarthy, "Octavianus Puer" (*C. P.* xxvi, 362 ff.); J. A. O. Larsen, "Were Gallia Narbonensis and Gallia Cisalpina under one Governor from 65-67 B. C.?" (*id.*, 427 ff.); K. Scott, "Tiberius' Refusal of the title Augustus" (*id.*, 51 ff.), "Tacitus and the *Speculum Principis*" (*A. J. P.*, liii, 70 ff.), "The Diritas of Tiberius" (*id.*, 139 ff.); C. E. Van Sickle, "Conservative and Philosophical Influence in the reign of Diocletian" (*C. P.* xxvii, 51

ff.); R. S. Rogers, "Two Criminal Cases tried before Drusus Caesar" (*id.*, 75 ff.) and "The Conspiracy of Agrippina" (*T. A. P. A.* lxii, 141 ff.); Winnie Lowrance, "Hannibal's Office," apropos of Nepos, *Hann.* 7.2 (*C. J.* xxvii, 205 ff.); H. V. Canter, "Conflagrations in Ancient Rome" (*id.*, 270 ff.); E. S. McCartney, "The Divine Retribution suffered by the Helvetians" (*id.*, 333 ff.). H. E. Burton gives us *The Discoveries of the Ancient World* (Harv. Univ. Press) and J. Whatmough "The *Osi* of Tacitus—Germanic or Illyrian?" (*H. S. C.* xlii, 139 ff.).

THE TEACHING OF LATIN

Under the somewhat misleading title "Latin as Fetish," H. M. Powers criticizes some of our modern methods. He declares that "the benefit of the study of Latin comes, the justification of its inclusion in the curriculum comes from the mastery of Latin, not from going on a Latin picnic." (*C. J.* xxviii, ff.). D. S. White tells us "What a Young Teacher may accept and reject in the Report of the Classical Investigation" (*id.*, 567 ff.). E. A. Schnabel laments "Little Latin and Less Greek" (*C. W.* xxv, 41 ff.), and D. E. Adams discusses "The Foundation of Culture" (*C. J.* xxvii, 428 ff.). J. F. Dobson contributes *Ancient Education and its Influence* to the series of "Our Debt to Greece and Rome."

GRAMMAR AND METRIC

R. G. Kent gives us his long anticipated and welcome treatment of *The Sounds of Latin*, a monograph of the Linguistic Society of America (Baltimore, 1932). W. Petersen discusses "The Evidence of Early Latin on the Subjunctive in *Cum*-clauses" (*C. P.* xxvi, 386 ff.); W. F. J. Knight, "Texture in Vergil's Rhythms" (*C. J.* xxvii, 192 ff.); Winnie Lowrance, "The Use of *forem* and *essem*" (*T. A. P. A.* lxii, 169 ff.); H. C. Nutting, "The Adnominal Genitive in Latin" (*U. C. P.* x. 10, 245 ff.); Eliza Wilkins, "A Classification of the Similes of Ovid" (*C. W.* xxv, 89 ff.); C. Knapp quotes from the *Classical Bul-*

letin "The Latin Contrary-to-fact Conditional Sentence in Indirect Discourse" (*C. W.* xxv, 120).

ANTIQUITIES

A. D. Fraser offers a new interpretation of "The Inscribed 'Kernos' of Duenos" (*A. J. P.* liii, 213 ff.). L. F. Smith discusses "A Group of Roman Milestones" (*C. P.* xxvii, 401 ff.); S. H. Mohler, "Feminism in the *Corpus Inscriptionum Latinarum*" (*C. W.* xxv, 113 ff.); A. D. Fraser, "Roman Horseshoes" (*C. J.* xxvii, 289 ff.); T. Frank, "The Public Finances of Rome, 200-157 B. C." (*A. J. P.* liii, 1 ff.), *Aspects of Social Behavior in Rome* (Harv. Univ. Press), and "Two Notes of Plautus" (*A. J. P.* liii, 243 ff.). Sister M. Aloysius Blakely tells "How the Younger Pliny Discloses the Social Life of His Day" (*C. W.* xxv, 57 ff.); J. L. Heller, of the "Burial Customs of the Romans" (*id.*, 193 ff.); D. B. Kaufman, of "Roman Tailors and Clothiers" (*id.*, 182 ff.); E. S. McCartney, of "Classical Weather Lore of Thunder and Lightning" (*id.*, 183 ff., 200 ff., 212 ff.); L. A. Post, of "Ancient Memory Systems" (*id.*, 105 ff.); D. B. Kaufman, of "Roman Barbers" (*id.*, 145 ff.); E. leV. Crum, of "Diet in Ancient Medical Practice" (*id.*, 153 ff., 161 ff., 169 ff.); B. F. Kaufman, of "Poison and Poisoning among the Romans" (*C. P.* xxvii, 156 ff.) and "Hoarding by the Romans" (*C. J.* xxvii, 685 ff.). G. Showerman's *Rome and the Romans*, in a less expensive edition, is added to Macmillan's Classical Series.

LITERARY CRITICISM

J. J. Savage discusses the question "Was the Commentary on Virgil by Aelius Donatus extant in the Ninth Century?" (*C. P.* xxvi, 405 ff.). Under the title of "*Advocatus Diaboli*," R. E. K. Pemberton defends the ancient rhetorical education (*C. J.* xxviii, 32 ff.). A. P. Wagener discusses "The Apostrophe to Nature as a Dramatic Device" (*T. A. P. A.* lxii, 78 ff.; Roman instances, 98 ff.); G. E. Duckworth, "Suspense in An-

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cient Epics" (*id.*, 124 ff.); Blanche Brotherton, "Vergil's Catalogue of the Latin Forces" (*id.*, 192 ff.); L. A. Post, "The 'vis' of Menander" (*id.*, 203 ff.). Elizabeth H. Haight offers *Romance in the Latin Elegiac Poets* (Longmans, Green & Co., 1932).

MEDIAEVAL AND LATE LATIN

The Med. Acad. of America publishes *A Concordance of Prudentius*, by R. J. Deferrari and J. M. Campbell; W. P. Mustard, "*The Eclogues of Henrique Cayado*" (Johns Hopkins Press). The Catholic Univ. Patristic Studies add vol. xxxiv, *Thasi Caecili Cypriani De Habitu Virginum*, by Sister Angela Keenan. R. T. Ohl writes of "Symposium and the Latin Riddle" (*C. W.* xxv, 209 ff.); J. Hammer, of "A Monastic Panegyrist of Horace" (*P. Q.* xi, 301 ff.); K. P. Harrington, of "The *Manes Catulliani* of J. C. Scaliger" (*C. J.* xxvii, 596 ff.); B. W. Mitchell, of "Merlin and Macaroni" (*C. W.* xxv, 33 ff.);

T. W. Valentine, of "The Medieval Church and Vergil" (*id.*, 65 ff.).

MISCELLANEOUS

K. Scott, "Mussolini and the Roman Empire" (*C. J.* xxvii, 645 ff.); E. H. Pierce, "Martial and St. Paul" (*id.*, 683 ff.); J. P. Pritchard, "The Autocrat and Horace" (*C. W.* xxv, 217 ff.); O. R. Kuehne, "Possible Latin Sources for an episode in Charles Reade, *The Cloister and the Hearth*" (*id.*, 177 ff.); E. S. McCartney, "Providence as a Successor to Nemesis" and "Forest Succession and Folklore" (*id.*, 47 f.), also "Pliny the Elder and Benjamin Franklin on the Art of not Contradicting" (*id.* 55); C. B. Gulick, "Adventures in Philology" (*C. J.* xxvii, 83 ff.); C. B. Hersey, "Rome a Symbol" (*id.*, 126 ff.); J. Stinchcomb, "The Literary Interests of a Roman Magnate" (*C. W.* xxvi, 1 ff.); C. Knapp, "American Illustrations of ancient Roman Life" (*id.*, 23 f.).

GREEK LITERATURE

ROBERT CHISHOLM HORN

DEAN, MUHLENBERG COLLEGE

ART AND ARCHAEOLOGY

Toward the end of 1931 the Harvard University Press published two more volumes of the *Results of Excavations Conducted by the American School of Classical Studies at Athens*. Vol. VIII, 1, *Greek Inscriptions*, is by B. D. Meritt; and Vol. IX, *Sculpture*, by F. P. Johnson. In addition to these works on Corinth, we have also *Necrocorinthia, A Study of Corinthian Art in the Archaic Period*, by Payne Humfry (Oxford Univ. Press, 1931). Other splendid publications of the Harvard University Press in 1931 are: *Excavations at Eutresis in Boeotia*, by Hetty Goldman; and *Byzantine Mosaics in Greece, Hosios Loukas and Daphni*, by E. Diez and O. Demus. *Attic Vase Paintings in the Boston Museum of Fine Arts*, Part I, by L. D. Caskey and J. D. Beazley, makes this material available in beautiful

form (Oxford Univ. Press, 1931). *The History of Attic Vase Painting*, by C. T. Seltman, is the third volume in the Martin Classical Lectures of Oberlin College (Harv. Univ. Press, 1932). The long awaited Volume II of *The Early Age of Greece*, by Sir William Ridgeway, edited by A. S. F. Gow and D. S. Robertson, appeared at the end of 1931, together with a reissue of the first volume (Macmillan). *Sculptured Portraits of Greek Statesmen*, by E. G. Suhr, is No. 13 of the *Studies in Archaeology* (Johns Hopkins Press, 1931). *Child Life in Greek Art*, by Anita Klein, is an interesting study of child life as interpreted from its representation in statues, terra cottas, and vases (Col. Univ. Press, 1932). *Seventy Years in Archaeology*, by Sir Flinders Petrie, is the autobiography of a great archaeologist (Holt, 1931). Other

important contributions are: *Outlines of the History of Architecture*; Part I, *Ancient Architecture*, by R. Newcomb (Wiley, 1931); *Greek Coinage*, by J. G. Milne (Oxford Univ. Press, 1931); and *The Coinage of Metapontum*, Second Part, by S. P. Noe, which is No. 47 of *Numismatic Notes and Monographs* (New York, 1931).

TRANSLATIONS AND EDITIONS

Among the important translations published this year are Lane Cooper's *The Rhetoric of Aristotle*, "an expanded translation with supplementary examples for students of composition and public speaking" (Appleton, 1932), and A. T. Murray's *Four Plays of Euripides*, translated with interpretative essays and notes (Stanford Univ. Press, 1931). The plays included in the latter work are: *Alcestis*, *Medea*, *Hippolytus*, and *Iphigenia among the Taurians*. The works of Aeschylus are represented by *Prometheus Bound*, with introduction and notes, by Gilbert Murray (Oxford Univ. Press, 1932), and *Agamemnon*, ed. by J. C. Lawson, containing text and translation (Macmillan, 1932). Other books of interest are: *The Platonic Epistles*, translated with introduction and notes, by J. Harward (Macmillan, 1932); *Callimachus, Four Hymns and the Epigrams*, with Verse Translation, by R. A. Furness (Jonathan Cape, London, 1931); and *Everybody's Plutarch*, arranged and edited for the modern reader, by R. T. Bond (Dodd, Mead, 1931). These volumes of the *Loeb Classical Library* were published this year by G. P. Putnam's Sons: *Greek Elegy and Iambus*, two volumes, by J. M. Edmonds; *Philostratus, Imagines*, and *Callistratus, Descriptions*, by A. Fairbanks; *Dio Chrysostom*, Vol. I, by J. W. Cohoon; and *Philo*, Vol. IV, by F. H. Colson and G. H. Whitaker.

GREEK LITERATURE AND LANGUAGE

Greek Comedy, by Gilbert Norwood, is a welcome book by a scholar who is already well known through his other works, and particularly his *Greek Tragedy* (Luce, Boston, 1931). In

the realm of interpretation and literary criticism we find a number of interesting books: *The Golden Thread*, by P. M. Buck, Jr., which is described as "the Romance of Tradition in Literature" (Macmillan, 1931); *The Greek View of Poetry*, by E. E. Sikes (Dutton); *Lucian, Plato and Greek Morals*, by J. J. Chapman (Houghton Mifflin Co.) and *Aristotle on the Art of Poetry*, an analytical commentary and notes, by A. S. Owen (Oxford Univ. Press, 1931). *A History of Later Greek Literature*, by F. A. Wright (Macmillan, 1932) gives the history of Greek literature from the death of Alexander to the death of Justinian. *Alexandrian Poetry under the First Three Ptolemies*, 324-222 B. C. is a translation by James Loeb of the work of Auguste Couat (Putnam, 1931). Works contributing aid in the study of Greek authors are R. J. Cunliffe's *Homeric Proper and Place Names*, a supplement to *A Lexicon of the Homeric Dialect* (Blackie and Son, Glasgow, 1931), and O. J. Todd's *Index Aristophaneus* (Harv. Univ. Press, 1932). The sixth part of the new edition of *Liddell and Scott's Greek Lexicon* is now at hand (Oxford Univ. Press, 1932).

GREEK HISTORY

The Treasurers of Athena, by W. S. Ferguson, and *The Archons of Athens in the Hellenistic Age*, by W. B. Dinsmoor, are important contributions of scholarship (Harv. Univ. Press). Another scholarly work is *Hellenistic Queens*, by Grace H. Macurdy (Johns Hopkins Press). This book, which is No. 14 of the *Studies in Archaeology* treats of the influence of royal women in Macedonia, Syria, and Egypt in the Hellenistic Age. Other valuable historical contributions are: *Tax Lists and Transportation Receipts from Theadelphia*, by W. L. Westermann and C. W. Keyes (Col. Univ. Press, 1932); and *The Large Estates of Byzantine Egypt*, by E. R. Hardy, Jr. (Col. Univ. Press, 1931). Sir Henry Maine's *Ancient Law* (World's Classics, Oxford Univ. Press, 1931), and H. Webster's *Ancient Civilization* (D. C. Heath and Co., 1931) are

SEMITIC LANGUAGES AND LITERATURE

full of interest. Oskar von Wertheimer's *Cleopatra*, A Royal Voluptuary, translated by Huntley Patterson, is a most readable description of an interesting personality and the age in which she lived (Lippincott, 1931). *The World of the New Testament*, by T. R. Glover, is delightful and stimulating (Macmillan, 1931).

GREEK LIFE AND CIVILIZATION

The Mycenaean Origin of Greek Mythology, by M. P. Nilsson, is full of interest; it is No. 8 of the *Sather Classical Lectures* (Univ. of Calif. Press, 1932). The author is already well known through his *History of Greek Religion* and his more recent *Minoan-Mycenaean Religion*, and he promises us soon a book entitled *Homer and Mycenae*. Two recent publications in Greek philosophy should be mentioned here: Eduard Zeller's *Outlines of the History of Greek Philosophy*, rev. by W. Nestle and trans. by L. R. Palmer, included in the *International Library of Psychology, Philosophy, and Scientific Method* (Harcourt, Brace, 1931); and *History of Greek Philosophy*, by B. A. G. Fuller, three vols. (Holt, 1923-1931). *Ancient Greek, Roman, and Byzantine Costume*, by Mary G. Houston (Macmillan, 1931) is a companion volume to *Ancient Egyptian, Assyrian, and Persian Costume*, by M. G. Houston and F. S. Hornblower, which

appeared a year ago. Books treating of the country or the people of Greece are: Sir James G. Fraser, *Studies in Greek Scenery, Legend, and History*, selected from his *Commentary on Pausanias' Description of Greece* (Macmillan, 1931); *Stories of the Old Greeks*, by W. H. D. Rouse (Macmillan, 1931); *Everyday Things in Archaic Greece*, by Marjorie C. and C. H. B. Quennell (Putnam, 1931); and *Wanderings in Greece*, by F. S. Burnell (Longmans, Green, 1931). The Macmillan Co. announces the early publication of *Greek Byways*, by T. R. Glover. Two well written and interesting volumes in the series entitled *Our Debt to Greece and Rome* are published this year; *Ancient Writing and Its Influence*, by B. L. Ullman; and *Ancient Education and Its Meaning to Us*, by J. F. Dobson (Longmans, Green).

NEW JOURNAL

On behalf of the American School of Classical Studies at Athens, the Harvard University Press in 1932 published the first volume of a new periodical, entitled *Hesperia*. The first volume, with its splendid articles of new archaeological material, made an excellent impression. We hope there will be sufficient interest to insure the future of this Journal of the American School, as the new excavations at Athens have begun.

SEMITIC LANGUAGES AND LITERATURE

BY GEORGE A. BARTON

PROFESSOR EMERITUS, UNIVERSITY OF PENNSYLVANIA

SEMITIC PUBLICATIONS

Perhaps because of the depression, publications in this field have not been as numerous as in other years; nevertheless some volumes of importance have appeared. Volume IX of the *Harvard Semitic Series*, Harvard University Press, Cambridge, Mass., 1932, bears the sub-title, *Excavations at Nuzi*, Vol. II, and is devoted to "The Archives of Shilwateshub, Son of the King." It contains 158 busi-

ness documents and letters, written at Nuzi, near the modern Kirkuk, in the fifteenth century B. C. The documents are written in Assyrian by Hurrians, and afford much welcome material for the reconstruction of the civilization of that ancient people. The texts have been copied and published by Professor Robert H. Pfeiffer, who has done his work well.

Before the end of the year the Jewish Publication Society of Phila-

delphia will issue the fourth volume of *Al-Nakawa's Menorat Ha-Maor*, in Hebrew, edited by Dr. E. G. Enelow of New York. The third volume appeared in 1931, but too late to be noted in THE AMERICAN YEAR BOOK. It is of interest to Jewish readers. The Jewish Theological Seminary, New York, is also publishing the *Midrash Haggadol* in Hebrew, edited by Dr. E. N. Rabinowitz.

Of works on Judaic literature, the Jewish Publication Society, Philadelphia, is publishing this year an English translation of Hermann Strack's *Introduction to the Talmud and Midrash*. This work in German has been one of the best guides to a student entering upon the mazes of Talmudic study; the English edition will greatly extend its helpful influence. The same Society is also publishing a translation of *The Divan of Leo de Modena* by Dr. S. Bernstein and *Selection of the Poems of Moses Ibn Ezra*. The volume contains the original text critically revised by Dr. H. Brodie Berlin, with an English translation by Dr. Solomon Solis Cohen of Philadelphia. These volumes open to English readers works of gifted Jews of former centuries. At the end of 1931, but too late for mention last year, the Fleming H. Revell Company published *The Archaeology of Palestine and the Bible* by Professor William F. Albright of Johns Hopkins University. The book is based on a series of lectures given by the author; the first giving a history of the development of Palestinian excavation; the second, to an account of the scientific excavation of the mound of Tell Beit Mirsim, of which he had himself been scientific director; the third, to illustrate applications of the results of excavations to the solution of Biblical problems. Lectures I and II are masterly; Lecture III, not so successful.

The same author has furnished the material for volume XII of the *Annual of the American Schools of Oriental Research*, which was published in September of this year. It bears the sub-title *The Excavation of Tell Beit Mirsim, Vol. I, The Pottery of the First Three Campaigns*. It is

a masterly piece of work. Professor Albright is one of the three foremost experts in Palestinian pottery. The collection here presented of the pottery of the Early Iron Age is the most complete yet published.

The Yale University Press is publishing this autumn *The Sealand of Arabia* by Raymond Philip Dougherty. Professor Dougherty has found evidence that this name was applied by the ancient Babylonians, not simply to marshes around the northern end of the Persian Gulf, but to a large part of eastern Arabia itself. The book is a valuable contribution to ancient history.

The American Sunday School Union is issuing before the end of the year a new and revised edition (the sixth) of George A. Barton's *Archaeology and the Bible*. The book has been enlarged and revised throughout. Special features of the new edition are a fresh translation of the Hittite Laws and a translation of a poem discovered in 1930 at Ras Shamra, in the northern part of ancient Phoenicia, on the death and resurrection of the vegetation god, later called Adonis. The poem was written in Phoenician, but in the peculiar cuneiform alphabet employed at Ras Shamra, an alphabet unknown to the modern world until 1928. It is the first real bit of literature recovered from ancient Phoenicia. A number of works have been published the purpose of which is to popularize a knowledge of the Old Testament, the various books of which are Semitic literature. The following have been published by the Macmillan Company, N. Y.: *The Ten Commandments*, by John H. Powell; *Prophets of Judah*, by Ursula Wells; *The Israel Saga*, by Brooke Peters Church; *A Modern View of the Bible*, by William G. Shute, and *Literature in the Bible*, by George Sprau. The Abingdon Press has also published *Romances from the Old Testament*, by Dallas Lore Sharp. Each of these books helps, in its own way, the non-technical reader to an appreciation of the Old Testament as literature.

Although it bears the imprint of 1931, A. T. Olmstead's *History of*

Palestine and Syria, published by Scribner's, did not reach us until 1932. It is a fine and able treatment of the history of a very difficult field. For large sections of the history one must depend upon Egyptian and Babylonian sources. The author by years of study has made himself a kind of American Eduard Meyer and has produced a notable work.

EGYPTOLOGY

Egyptology is closely related to Semitics: some scholars count Egyptian a Semitic language. It is not out of place, therefore, to mention here the publication by the University of Chicago Press of Vol. II of Breasted's *Medinet Habu*. Like volume I it is a magnificent folio and continues the publication of the Egyptian texts of the temple of Rameses III.

HITTITE HIEROGLYPHS AND VOCABULARY

In another field, the Hittite, which is not Semitic, but which may conven-

iently be treated with it, since our chief knowledge of it has come through a Semitic script, two noteworthy publications have been made in America: *Hittite Hieroglyphs* by Ignace J. Gelb and "Die sogenannte hethitische Bilderschrift," by Emile O. Forrer. The former was published by the University of Chicago Press, and the latter appeared as an article in the April (1932) number of the *American Journal of Semitic Languages*, issued by the same publishing house. Gelb and Forrer apply different methods to the solution of the riddle of these hieroglyphs and reach different conclusions, thus emphasizing the fact that the riddle is not solved.

In another department of the same field George A. Barton is publishing this year through Geuthner in Paris *A Hittite Chrestomathie* with vocabulary for the use of beginners in cuneiform Hittite. It is a companion volume to his *Hittite Manual*, published in 1929.

INDO-EUROPEAN LINGUISTICS

BY J. A. KERNS

PROFESSOR, NEW YORK UNIVERSITY

General Indo-European. — R. G. Kent treats of the development of dental groups in *Language* (viii, 18-26). The whole theory of *IE* intonational differences has been under attack from J. Kurylowicz for some time. In his previous publications in this field, appearing in foreign periodicals, he has sought to show the secondary character of such distinctions in Balt-Slavic. In *Language* (viii, 200-210), he seeks to show as much for Greek, arguing that all circumflexed vowels and diphthongs are specifically Greek in origin. Incidentally, he rejects the orthodox explanation of those Vedic metrical peculiarities which are commonly attributed to *IE* circumflexing. If Kurylowicz can maintain his thesis, the whole question of the development of final syllables in Germanic must be taken up

afresh, as all modern research in this field has started out from postulated *IE* intonational differences. It is probable, however, that the older view will be championed in forthcoming articles from other sources. L. H. Gray published a detailed treatment of *IE* noun declension, more particularly the declension of *o-* and *a-* stems, in *Language* (viii, 183-189). An important semantic study is the dissertation of Grace Sturtevant Hopkins, "Indo-European Deiwos and Related Words" (*Language Dissertation* xii, p. 83). Assembling a large amount of material from literary sources in Sanskrit, Greek and Latin, the author shows that for the older interpretation of this word for "god" as having earlier meant "bright sky," we must substitute the more general concept "sky."

Hittite.—Cf. E. H. Sturtevant, "The Ablative in Indo-European and Hittite," (*Language* viii, 1-10); "The s-aorist in Hittite," (*ibid.*, 119-132); W. Petersen, "The Personal Endings of the Hittite Verb," (*American Journal of Philology*, liii, 193-212).

Indo-Iranic.—The most important event in this field is the appearance of *Vedic Variants, volume ii: Phonetics*, by the late Morris Bloomfield and Professor Franklin Edgerton. Further volumes of this monumental work are to appear hereafter. Cf. also L. H. Gray on Old Persian etymologies in *American Journal of Philology*, (liii, 67-69), and W. N. Brown, "Lexical Notes on Sanskrit and later Indian Tongues," (*Language* viii, 11-17).

Greek.—Cf. G. H. Bolling, "Homeric Adverbs in -δῆς, -δα, -δά," (*Language* viii, 211-213); D. C. Woodworth, "Studies in Greek Noun Formation," vi, 1. Words in -δῆ, -δᾶ, -δος, -δου," (*Classical Philology* xxvii, 255-267); vi, 2. "Words in -δας, -δης," (*ibid.* 343-352). H. F. Standerwick, "Etymological Studies in the Greek Dialect Inscriptions" (*Language Dissertation* x, p. 86).

Latin.—R. G. Kent has published an excellent manual on phonology, "The Sounds of Latin" (*Language Monograph* xii, p. 216). Being designed for practical academic purposes, the book is accompanied by a graded series of exercises. Cf. also W. Petersen, "The Relation of the Latin -bo Future to the Italic Imperfect," (*Language* viii, 133-137); A. D. Fraser, "The Inscribed Kernos of Duenos," (*American Journal of Philology* liii, 213-232).

Germanic.—H. v. Velten, "A Note on the Sound Shifts," (*Germanic Re-*

view vii, 76-80). A. M. Sturtevant, "Germanic Notes" (radical vowel of -jan verbs; sonantizing of unvoiced spirants in sonant surroundings in North and West Germanic), (*ibid.* 367-373); "Lengthening of Vowels before tt<XT in O. Norse," (*Language* viii, 215-216). F. A. Wood, "Some Germanic Etymologies," (*ibid.* 213-214). A. L. Rice, "Gothic Prepositional Compounds in their relation to their Greek originals" (*Language Dissertation* xi, p. 142), a study in which the richness of the Gothic vocabulary and the flexibility of the language in the use of preverbs are brought out rather strikingly. An important syntactic study, not strictly confined to Germanic, is that of E. Sapir and M. Swadesh (A. V. Morris, editor), "The Expression of the Ending Point Relation in English, French and German" (*Language Monograph* x, p. 125). A. S. C. Ross, writing in *Modern Language Notes* (xlvii, 377), seeks to show that in the three occurrences of the second plural imperative *gebidaþ* in Old English we have the survival of an optative form virtually identical with Gothic *bidjaip*.

Balto-Slavic.—Cf. F. R. Preveden, "Some Balto-Slavic Terms of Acoustic Perception," (*Language* viii, 145-151). R. Marcus, "A Note on Greek *καράβιον* in its relation to Church Slavonic *korabŭ*," (*ibid.* 216-217).

Meetings.—In the summer of 1932 a Linguistic Institute was held under the auspices of the College of the City of New York. Although the Linguistic Society of America did not as in former years officially participate in this undertaking, a number of its prominent members conducted courses in the Institute. As yet, no plans for 1933 have been announced.

CHILDREN'S BOOKS

BY MAY LAMBERTON BECKER

READERS' GUIDE, *The Saturday Review of Literature*

THE CLAIM TO CONSIDERATION

More than in any other country, children's books in America have now

reached a point of development deserving separate attention in a survey of national literature. They call for

consideration on their claims as contributions to children's literature, awaiting the ideal state when they may be considered as possible contributions to literature in general.

ECONOMIC CHECKS TO DEVELOPMENT

It is also the first year since the establishment of Children's Book Week thirteen years ago that this department of publishing—for in this time publishing has been developing the separately organized children's book department—has felt not the pinch but the squeeze of hard times. Even in 1931 when book-buying parents went without for themselves, it was often for the sake of their children's books. This year sterner conditions have, by cutting down popular support, arrested for the time being much of the fruitful experimentation long going on. This has been directed as much toward discovering reading tastes of children as toward efforts to improve them. It has been conducted on the only possible plan: offering to the young reader what authors, illustrators, educators and in general, people with children's interests at heart, believe they should want, and watching to see if they did want it.

BROADENING SUBJECT MATTER

The most striking advance to one looking at children's books on the counters is in illustration, format, and, to some extent, typography. But an improvement quite as important has been in widening the range of subject matter. Science has been presented simply but without condescension, building and machinery recognized as among the wonders of a child's world, the curse lifted from geography and history by books that have made a child at home in time and the world. In the field of fiction expansion has been slower and improvement most marked where it was most needed, in stories for girls. Boys' books in America have always led these in popular esteem, even of girls themselves, save for occasional exceptions like *Little Women*. Girls' books have suffered most from the greatest

danger of our children's books, the tendency to be too careful; they have been further cramped by the necessity of pleasing first the adult who must buy the book before it can reach the child for whom it was written. But standards have been steadily lifting. If not all the problems of growing-up have had expression with the depth and beauty of Rachel Field's *Hepatica Hawks*; if not every panorama of our school or college life shows it as faithfully as Elizabeth Corbett's stories of the Graper Girls; if family life has not always appeared with the blend of old loyalty and contemporary conditions in Elsie Singmaster's *The Young Ravenels*; if not every biography moved with the dash and swing of Jeannette Eaton's *Young Lafayette*, there are fewer in proportion of those empty and twittering books that were the real danger.

INFLUENCE OF THE NEWBERY MEDAL AWARD

The establishment of the Newbery Medal by Frederick Melcher and its annual award by a jury of librarians, by centering public interest in the choice of the best book of the year, has done much to make possible a book for children as far off the line of their supposed interests and as far above the average of Indian stories as this year's prize-winner, *Waterless Mountain*, a book of poetic beauty instantly recognized by children everywhere. The steady influence of Children's Rooms in our public libraries, working always for the best in literature and art, especially the insistence on only the best by experts in this field such as Anne Carroll Moore, has had an effect for good hard to overestimate. Book-clubs reaching children every month with a new book to own and to keep, have been forming the book-cherishing habit in new fields. On the basis of all this, publishing for children will go on more firmly, though in a manner less striking, to levels steadily higher.

BIBLIOGRAPHY

Ola. Ingri and Edgar Parin d'Aulaire. (Doubleday.)
Little House in the Big Woods. Laura Ingalls Wilder. (Harper.)

XXV. LITERATURE AND LANGUAGE

The Treasure in the Little Trunk. Helen Fuller Orton. (Stokes.)
Auntie. Maud and Miska Peter-sham. (Doubleday.)
Wanda Gag's Story Book. (Coward-McCann.)
Sally and her Friends. Lena Towns-ley. (Farrar.)
Relief's Rocker. Alice Dalglish. (Macmillan.)
The Book of Nah-Wee. Grace and Carl Moon. (Doubleday.)
The Four Young Kendalls. Eliza Orne White. (Houghton.)
The Little House in Green Valley. Clara Whitehill Hunt. (Houghton.)
The Christmas Tree in the Woods. Susan Smith. (Minton.)
The Bird Began to Sing. Rachel Field. (Morrow.)
The Street of Little Shops. Mar-gery Bianco. (Doubleday.)
Tirra-Lirra: Rhymes Old and New. Laura E. Richards. (Little.)
Unicorn with Silver Shoes. Ella Young. (Longmans.)
Lions, Gorillas and Their Neigh-bors. Carl and Mary Akeley. (Dodd.)
Wagtail. Alice Gall and Fleming Crew. (Oxford Univ. Press.)
Magic Portholes. Helen Follett. (Macmillan.)
The Donkey of God. Louis Unter-meyer. (Harcourt.)
Nicholas and the Golden Goose. Anne Carroll Moore. (Putnam.)
Cricket and the Emperor's Son. Elizabeth Coatsworth. (Macmillan.)
Young Fu of the Upper Yang-tse. E. F. Lewis. (Winston.)
Discovering Christopher Columbus. C. B. Jordan. (Macmillan.)
Christopher Columbus. Edna Pot-ter. (Oxford Univ. Press.)
These United States. Gertrude Hartman. (Macmillan.)
We the People. Leo Huberman. (Harper.)

Old New York for Young New Yorkers. Caroline Emerson. (Dutton.)
Young Lafayette. Jeannette Eaton. (Harper.)
Railroad to Freedom. Hildegard H. Swift. (Harcourt.)
Here Comes Barnum. P. T. Bar-num's Own Story, collected from his books by Helen Ferris. (Harcourt.)
Romantic Rebel: The Story of Na-thaniel Hawthorne. Hildegard Haw-thorne. (Century.)
Men at Work. Lewis W. Hine. (Macmillan.)
Van Loon's Geography. (Simon and Shuster.)
Tracks Across the Sea. Alfred Loomis. (Appleton.)
Flying and How to Do it. Assen Jordanoff. (Grosset.)
Puppet Parade. Carol Della Chi-esa. (Longmans.)
The Ragamuffin Marionettes. Fran-ces L. Warner. (Houghton.)
Handicraft for Girls. Edwin T. Hamilton. (Harcourt.)
Boy's Book of Journalism. G. L. Knapp. (Dodd.)
Hepatica Hawks. Rachel Field. (Macmillan.)
The Way to Glory. Marion Hurd McNeely. (Longmans.)
Debby Barnes, Trader. Constance L. Skinner. (Macmillan.)
The Graper Girls Go to College. Elizabeth Corbett. (Century.)
Buffalo Barty. Olaf Baker. (Dodd.)
Swift Rivers. Cornelia Meigs. (Little.)
Road to Carolina. Marjorie Hill Allee. (Houghton.)
Gray Caps. Rose C. Knox. (Double-day.)
Young Ravenels. Elsie Singmaster. (Houghton.)
Wild Cat Ridge. Maristan Chap-man. (Appleton.)
Rolling Wheels. Katherine Grey. (Little.)

LIBRARIES

LIBRARIES

BY BEATRICE SAWYER ROSSELL

AMERICAN LIBRARY ASSOCIATION

SERVICE DURING THE DEPRESSION

Growth of Demand.—In a period of economic stress, reading and the use of libraries greatly increases. How the demand for books grew between 1929 and 1931 is indicated by comparative figures for public libraries in cities of more than 200,000 population, published in the September, 1932, *Bulletin of the American Library Association*. More than a million new readers were added to these libraries during the two-year period and the 157,000,000 books circulated in 1931 represented an increase of 26,000,000 over circulation figures for 1929. Only 44 libraries were represented in this comparison, and since the United States Office of Education reports 6,429 libraries of more than 3,000 volumes in the United States, and circulation in small libraries has also greatly increased, the figures given are very low for the country as a whole. Quality as well as quantity in reading is higher, according to many library reports. The Los Angeles Public Library states that a "standing room only" sign was badly needed in the sociology room the last year. Cleveland and many other libraries report increased demand for books on trades, vocations and occupations. The Chicago Public Library is among the libraries finding a higher type of recreational reading.

Budgets and Appropriations.—Widespread economy programs threaten to curtail library services at a time when they seem most needed, but some cities are exempting the library from cuts imposed upon other departments. In Oakland, for example, the library budget was increased \$8,000 for 1932-33, although the assessed valuation of the city was reduced \$15,000,000 and the tax rate was cut four cents. In Duluth, branch libraries which were to be closed for the sake of economy, were kept open because of their services to the unemployed. More

detailed information about libraries during the depression will be found in the *Bulletin of the American Library Association*, October, 1931 to date, the *Library Quarterly*, October, 1932; the *Wilson Bulletin*, December, 1931, and the *Library Journal*, December, 1931, to date.

LIBRARY EXTENSION

Needs for Service.—During this period when existing libraries have reported record-breaking use, the need for library service has been more and more keenly felt in communities still without it. This need has found expression in the organization of Citizens' Library Committees in Louisiana, Michigan and New York, following the earlier lead of a few other states. In West Virginia the state Association of University Women has laid the foundation for similar action. National organizations have continued their library extension programs. The National Congress of Parents and Teachers and the General Federation of Women's Clubs again indorsed the county library at their annual conferences. The latter issued for the first time a library extension leaflet, *Library Service for Everybody*. Rotary International discussed libraries in its Seattle Conference, while the Lions and other service clubs throughout the country reported many library activities. State White House Conferences on Child Health and Protection have also called attention to rural library needs.

Rural Library Developments.—In Maine a book automobile, presented to the State Library by the organization of Business and Professional Women's Clubs, visited every part of the state, giving direct book service to individuals without access to local libraries and establishing traveling library stations in many localities. This fall it is being used for an experiment in intensive book service to one dis-

trict. In the South, the Rosenwald demonstration county libraries have made heroic efforts to maintain the local financial support necessary to meet Rosenwald grants, and have in most cases succeeded. The records of book circulation in these counties show beyond question that rural people will read if given the opportunity. In Louisiana, county library service in one parish, undertaken by the state library commission as a demonstration, has been permanently established with local support. Library development in the South was furthered by a meeting of Southern library extension workers, held in New Orleans in April (prior to the annual conference of the American Library Association) to discuss common aims and to coordinate programs for state, school, and county library development. Intensive regional field work in the South was continued under the Library Extension Board of the American Library Association.

ADULT EDUCATION

Service Extension.—Adult education service of public libraries has been much extended, due mainly to the increased demands of the general public for information on social, industrial, and economic questions. Eight additional public libraries have organized an advisory service in order to handle more conveniently the volume of requests for individual help with reading, making a total of fifty public libraries maintaining Readers' Bureaus.

Rural Adult Education.—"Adult Education and Rural Life" was the theme of the American Country Life Conference, held at Oglebay Park, Wheeling, W. Va., October 14-16. Book needs of rural people and ways of developing adequate rural library service were discussed at a forum on "The Extension of Library Service." A statement on cooperation between state library extension agencies and state agricultural extension services in stimulating interest in reading among rural people and in providing the books needed, prepared by the Library Extension Board of the American Library Association, showed a

wide variety of methods of cooperation between these two groups in making the tools of adult education available to rural people.

Radio and Adult Education.—The American Library Association and individual libraries have cooperated with the National Advisory Council on Radio in Education and the University of Chicago Press in the preparation and dissemination of reading lists to accompany educational broadcasts over a nation-wide chain, on the subjects of psychology, economics, vocational guidance, labor, government, and child training. Advance distribution of the book lists and announcements of the broadcasts, enabled librarians to meet demands for the recommended books resulting from the interest aroused.

Reading with a Purpose.—The increase in use of the more than sixty Reading with a Purpose courses, published by the American Library Association, proves the need for such guides to serious reading. *Unemployment*, by Aaron Director, *American Life in Architecture* by Philip N. Youtz, and *Interior Decoration* by Dudley Crafts Watson are 1932 additions to this list. During the next few months three timely subjects will be covered by courses on *Russia the Soviet Way* by Robert C. Brooks; *The Negro* by Alain L. Locke, and *Our Social Responsibilities*.

Books for the Blind.—As the result of passage last year of the Pratt-Smoot Bill appropriating \$100,000 yearly for books for the blind, 151 new titles have been embossed and 6,467 copies of the books have been distributed to libraries serving the blind. The Reading with a Purpose courses, together with one book recommended from each course, are being embossed. Dr. Herman H. B. Meyer is in charge of the work at the Library of Congress, as Director of Project, Books for the Blind.

CHILDREN'S READING

Children's Reading, a study of voluntary reading of boys and girls in the United States, the report of a Subcommittee on Reading of the White House Conference on Child

Health and Protection, was published during the year. Carl H. Milam, secretary of the American Library Association, was chairman of this subcommittee.

EDUCATION FOR LIBRARIANSHIP

Library Schools.—The fall of 1932 marks the closing of two accredited library schools, those of the Los Angeles and the St. Louis Public Libraries. In each instance present economic conditions and a general oversupply of professionally trained librarians contributed to the decision of responsible authorities to discontinue a well-established and successful school. Twenty-three library schools are now fully accredited by the American Library Association and three others have been granted provisional accreditation. In 1931-32, the library schools enrolled more students than in any previous year, thirty-five schools reporting 1,636 students in November, 1931. Five accredited library schools now offer opportunity for advanced study or research. Four of these schools awarded forty-six Master's degrees in library science in 1931. The Graduate Library School of the University of Chicago, organized exclusively for research in its special field, awarded three Doctor's degrees in 1932.

Oversupply of Professionally Trained Librarians.—Unemployment among librarians and the relation of supply to demand received the attention of the Board of Education for Librarianship and the Association of American Library Schools, through publications and group discussions. Early in 1932, the Board of Education for Librarianship urged that library schools reduce the size of their classes through a more rigid scrutiny of applicants; that, in general, the establishment of new agencies for educating librarians demands the most careful consideration and scrutiny; that employers of librarians raise professional requirements for library positions, and discriminate more accurately among various types of credentials offered; that library school faculties and librarians generally take the opportunity afforded by the pres-

ent situation to discover those few young people who show marked personal qualifications and promise, and to encourage them to prepare adequately for librarianship.

RESEARCH

Research Groups.—Research, Studies, Surveys and Special Projects will be the concern of a board appointed this year by the Executive Board of the American Library Association, with Louis Round Wilson, dean of the Graduate Library School, University of Chicago, as chairman. The board, together with the Graduate Library School of the University of Chicago and the Library Administration Committee of the American Library Association, is now studying economies being practiced by public libraries.

A committee of the Association of American Library Schools, headed by Anne Boyd of the University of Illinois Library, Urbana, is assembling information on facilities which library schools possess for the study of certain types of libraries and their problems. The headquarters of the American Library Association acts as a clearing-house for information about subjects on which there is need of research in the library field.

Interest in research and advanced study has been stimulated by fellowships made available to librarians and students of librarianship since 1929 through the generosity of Carnegie Corporation. Information about the fellowships may be obtained from the chairman of the Committee on Scholarships and Fellowships of the American Library Association, Harrison W. Craver, Engineering Societies Library, 29 W. 39th Street, New York City.

State Document Centers.—The establishment of state centers for the collection of public documents has been undertaken by the Social Science Research Council and the American Library Association, with Dr. A. F. Kuhlman, University of Chicago, heading the project. The need for such centers is felt especially by social scientists doing research work.

Cooperative Cataloging.—An investigation of the possibilities of cooperative cataloging among libraries

dealing with research material, financed by the General Education Board, has resulted in a grant from that board of \$45,000 to carry out a plan proposed by the investigating committee, headed by Keyes D. Metcalf of the New York Public Library.

AMERICAN LIBRARY ASSOCIATION

Officers.—Officers for 1932-33, elected at the fifty-fourth annual conference of the American Library Association, are: Harry Miller Lydenberg, assistant director, Public Library, New York City, president; Julia Ideson, librarian, Public Library, Houston, Tex., first vice-president; Joseph L. Wheeler, librarian, Enoch Pratt Free Library, Baltimore, Md., second vice-president; Matthew S. Dudgeon, librarian, Public Library, Milwaukee, Wis., treasurer. The conference was held April 25-30 in New Orleans, La., with approximately 1,300 of the Association's 12,000 members present.

Council Action.—At the 1931 Midwinter Meeting in Chicago the Council discussed fields and functions of the Association and the Executive Board adopted a future program which was later submitted to the Carnegie Corporation of New York. The Carnegie Corporation has since announced that it plans to give the Association a second million dollars of endowment, \$500,000 in 1932-33 and \$500,000 in 1933-34. A retirement plan for librarians was approved in principle, and the Executive Board is now considering its immediate adoption. A resolution on libraries and the depression urged all reasonable economy in library administration, but called on library trustees to secure support for the stabilizing and constructive services of the library which help to maintain public morale, promote vocational education and stimulate intelligent thought, at a time when such aids are particularly needed. A similar resolution was passed at New Orleans, where the Council also adopted principles for school and public library development, indorsed in principle the consolidation of counties, approved plans for a proposed advisory service to college li-

braries and a headquarter's department for work with children and adolescents, and urged that trustees, librarians and directors of library schools do all in their power to maintain salary scales commensurate with those in other professions.

Newbery Medal Award.—The John Newbery Medal, awarded annually by the Association's Section for Library Work with Children for the most distinguished contribution to children's literature of the previous year, was presented in 1932 to Mrs. Laura Adams Armer for *Waterless Mountain*.

Publications.—Important publications issued by the Association in 1932 included a general book on reading, *Making the Most of Books*, by Leal A. Headley of Carleton College, Minnesota; a general buying guide for libraries, *A. L. A. Catalog, 1926-1931*, describing 3,000 books selected from among those published during the past five years; a study of *The College Library* (published jointly with the University of Chicago Press); a manual on *The Junior College Library*; a *Prison Library Handbook*; *Children's Library Yearbook, No. 4*; and *School Library Yearbook, No. 5*. A reading list for Thinking America, devoted to the economic crisis in America and abroad, was also issued and widely distributed. Another list which attracted national and even international attention was Fifty Notable American Books of 1931.

FUNDS FOR LIBRARY WORK

In addition to grants mentioned elsewhere in this article, other sums set aside for library purposes during the year included: a legacy to the New York Public Library of \$2,000,000 and to the J. Pierpont Morgan Library of New York City of \$250,000, from the estate of Lewis Cass Ledyard; a trust fund of \$1,000,000, established by Willis Edward Hall, the income from which will be received by the Burlington, New Jersey, Public Library; the Andrew Preston Peabody Fund of \$100,000, given to Harvard University by Caroline E. Peabody; \$35,000, given to the Las Cruces, New Mexico, library by Mrs.

Alice M. Branigen; \$25,000, given to the Wolcott and Litchfield Circulating Library, Wolcott, Connecticut, by William Colgate; and \$25,000, given to the Cincinnati Public Library by George W. Armstrong, Jr. Trust funds for libraries in the United States are now known to total at least \$105,000,000.

NEW BUILDINGS

The Folger Shakespeare Library, Washington, D. C., erected at a cost of \$2,000,000 and having a \$10,000,000 endowment fund, is outstanding among new buildings dedicated this year. Others in course of construction or completed include: Edward L. Doheny, Jr., Memorial Library at the University of Southern California, costing \$1,100,000; the Indiana State Library, costing approximately \$1,000,000; the Deering Memorial Library at Northwestern University, Illinois, costing \$1,000,000; the library at the University of Texas, costing \$1,000,000; the Myrtle Reed Library at the University of Denver, Colorado, costing \$350,000; the Mercantile Library, New York City, costing \$350,000; the library at Atlanta University, Georgia, costing \$300,000; the library at Murray State College, Kentucky, costing \$250,000; Harper Hall, Claremont Colleges, California, costing \$175,000; the library at Sul Ross State Teachers College, Texas, costing \$150,000; and the James Laughlin Memorial Library at the Pennsylvania College for Women, costing \$100,000. The central library at Evansville, Indiana, mentioned last year, was dedicated this year. The Harkness Library at Columbia University is being erected at a cost of \$3,500,000. It will be completed in May, 1934.

BIBLIOGRAPHICAL WORK

Project "B."—Project "B," financed by a Rockefeller five-year an-

nual grant of \$50,000, includes a group of operations undertaken to increase the bibliographical apparatus of the Library of Congress in aid of research. Work on this project was finished August 31 and the results turned over to the special staff of the Library of Congress. The material for the Union Catalog included 8,344,256 locations of 6,775,936 different works. The Union list of special collections included "a revised and winnowed list of 4,884 American collections" together with supporting material covering not far from ten thousand collections at home and abroad. The total bibliographical material of all sorts turned over by Project "B" included nearly 14,000,000 items of which about three-fourths were "enlargement of apparatus" received in 1927.

Project "C," undertaken under the supervision of the Library of Congress and financed by a grant obtained by the American Council of Learned Societies, is the first attempt to list the medieval and renaissance manuscripts and documents existing in public and private ownership in the United States and Canada. With the assistance of Dr. W. J. Wilson and the cooperation of innumerable librarians and collectors, Seymour de Ricci, of Paris, has succeeded, in the last four years, in describing some five thousand manuscripts in several hundred collections. The work, of which 500 pages are already in type, will be published in a few months at an extremely reasonable price, and it is hoped that it will prove to be a useful contribution towards further research in many fields. Students will be glad to find listed for the first time such world famous literary treasures as the holdings of the Pierpont Morgan Library, the H. C. Folger Library, the H. E. Huntington Library and the Henry Walters collection, to name only a few of the many series described.

XXV. LITERATURE AND LANGUAGE

DIVISION XXV

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

GENERAL

AMERICAN ACADEMY OF ARTS AND LETTERS, 633 W. 155th St., New York City.
AMERICAN ACADEMY OF ARTS AND SCIENCES, 28 Newbury St., Boston, Mass.
AMERICAN BOOKSELLERS' ASSN., 15 Park Ave., New York City.
AMERICAN COUNCIL OF LEARNED SOCIETIES, 23 University Hall, Cambridge, Mass.
AMERICAN LIBRARY ASSN., 520 N. Michigan Ave., Chicago, Ill.
AMERICAN NEWSPAPER PUBLISHERS' ASSN., 270 Madison Ave., New York City.
AMERICAN PHILOSOPHICAL SOCIETY, Independence Sq., Philadelphia, Pa.
AMERICAN SOCIETY OF COMPOSERS, AUTHORS AND PUBLISHERS, 1501 Broadway, New York City.
AMERICAN SOCIETY OF NEWSPAPER EDITORS, The Journal, Milwaukee, Wis.
ASSOCIATED PRESS, 383 Madison Ave., New York City.
ASSN. OF FOREIGN PRESS CORRESPONDENTS IN THE U. S., 66 Broadway, New York City.
ASSN. OF NATIONAL ADVERTISERS, 420 Lexington Ave., New York City.
ASSN. OF NEWSPAPER ADVERTISING EXECUTIVES, Indianapolis, News Bldg., Indianapolis, Ind.
BIBLIOGRAPHICAL SOCIETY OF AMERICA, Grosvenor Library, Buffalo, N. Y.
GERMAN PRESS CLUB OF N. Y., 21 Frankfort St., New York City.
MODERN LANGUAGE ASSN. OF AMERICA, New York University, New York City.
NATIONAL ASSN. OF BOOK PUBLISHERS, 347 Fifth Ave., New York City.
NATIONAL EDITORIAL ASSN., 131 E. 6th St., St. Paul, Minn.

NATIONAL INSTITUTE OF ARTS AND LETTERS, 633 W. 155th St., New York City.
NATIONAL PUBLISHERS' ASSN., 15 W. 37th St., New York City.
PEOPLES INSTITUTE, 70 Fifth Ave., New York City.
UNITED PRESS ASSN., 61 Park Row, New York City.
U. S. PUBLISHERS ASSN., INC., 522 Fifth Ave., New York City.

AMERICAN LITERATURE

AMERICAN DIALECT SOCIETY, Warren House, Cambridge, Mass.
AUTHORS GUILD, 2 E. 23rd St., New York City.
AUTHORS LEAGUE OF AMERICA, INC., 2 E. 23rd St., New York City.
CATHOLIC WRITERS GUILD OF AMERICA, 128 W. 71st St., New York City.
NATIONAL ASSN. FOR AMERICAN SPEECH, 2480 Broadway, New York City.
NATIONAL COMMITTEE TO STUDY JUVENILE READINGS, 1 Madison Ave., New York City.
SIMPLIFIED SPELLING BOARD, Lake Placid Club, Essex County, N. Y.

LANGUAGE AND LITERATURE

AMERICAN CLASSICAL LEAGUE, First National Bank Bldg., Princeton, N. J.
AMERICAN ORIENTAL SOCIETY, Yale University, New Haven, Conn.
AMERICAN PHILOLOGICAL ASSN., Wesleyan University, Middletown, Conn.
DANTE LEAGUE OF AMERICA, INC., 15 Gramercy Park, New York City.
DICKENS FELLOWSHIP OF NEW YORK, 119 E. 19th St., New York City.
INTERNATIONAL DANTE SOCIETY, 15 W. 107th St., New York City.
MODERN LANGUAGE ASSN. OF AMERICA, Bryn Mawr College, Bryn Mawr, Pa.

DIVISION XXVI

THE ARTS

ARCHAEOLOGICAL DISCOVERY AND RESEARCH

BY RALPH VAN DEMAN MAGOFFIN

PROFESSOR, NEW YORK UNIVERSITY

UNITED STATES

Chetro Ketl.—The great Sanctuary formerly called the Sun Temple has been excavated by the Joint Expedition of the School of American Research and the State University of New Mexico down to the fifth floor level. It has been dated as 861-1125 A. D. by tree rings.

Mimbres.—A. E. Jenks has begun a fine piece of research work in American Vase Painting in his *Architectural Plans of Geometric Art on Mimbres Bowls*.

Osage Language.—The Smithsonian Institution has published the *Dictionary of the Osage Language* by Dr. F. La Flesche, himself partly an Omaha Indian.

LATIN AMERICA

The Great Wall of Peru.—The series of forts and the great wall built by Chimú to follow the Santa river, has been found and traced by aerial photography. The wall is about 12 to 20 feet high, and at places it goes up on the mountains to a height of 11,000 feet.

Monte Alban.—The greatest discovery thus far made in Mexico is in Oaxaca. A main plaza, 1,000 x 650 feet, surrounded by pyramids and platforms, has been laid bare. Three mounds were found in the center of the plaza. The great stairway, shown to be the latest of three superposed stairways, is 130 feet wide, 42 feet high, with 33 steps. The finds in the tombs are amazing. In

tomb 7, *e.g.*, were: a goblet of rock crystal, an amphora of onyx (*tecali*), 10 bracelets, 6 of gold and 4 of silver, a magnificent golden diadem and plume, a skull with turquoise mosaic, a gold breastplate of the "Jaguar Knight," a necklace of gold with a fringe of bells, jade earrings, necklaces of gold, pearl, and turquoise, a gold mask of the god Xipe-Totec, and a necklace of the teeth of crocodiles and wolves. The carving on the jades and rock crystal proves lapidary work of great skill. The turquoise shows trade with New Mexico. The date of the objects found is 14th century A. D.

ASIA MINOR

Hittites.—Hrozný, by his philological researches, seems to have settled many of the questions as to the Hittites. People called Khatti came from the Caucasus into Asia Minor in the fourth millenium B. C. The Indo-European Luites came in the third millenium, and the I.-E. Nesites, *via* the Bosphorus, in the second. Indo-European Hittites should be called Nesites; Hittites is probably the name of the pre-I.-E. layer of Cappadocians; Hittites, therefore, is to be used only in the political sense as the name for the founders of the Kingdom of Hatti. The name Khurrites is probably the same as Hyksos.

CYPRUS

Ajia Irini.—Discoveries here have given the much desired connection

between Oriental and Greek cultures. In the fourth *temenos* (600-525 B. C.) over 2,000 terra cotta statues and statuettes were found *in situ*. They were in three semi-circular rows facing an altar. Life-size statues were in the back row, smaller-sized statues in the middle row, and statuettes in the front row. The deity being thus worshipped is unknown, but probably was a God of Fertility worshipped in the form of a bull. Hundreds of votive offerings were also found. The art history of Cyprus has now been put on a safe archaeological foundation dating from the beginning of the early archaic of the Geometric period to its maturity in the late archaic period.

DALMATIA

Zara (Jader).—The discoveries of statues of Augustus and Tiberius in sacerdotal dress, of the many pieces of splendid Roman glass, of jewelry, of animal sculptures in amber, and of many objects of which the most noteworthy is a hand mirror of bronze with a lead handle and frame, and with a bas-relief of the Three Graces on the back of the mirror, have added materially to the knowledge of the Arts and Crafts of the early Roman imperial epoch.

EGYPT

Queen Hatshepsut.—The putting together by the Metropolitan Museum of nine statues of the Queen, which had been broken by Thotmes III, make an "exciting record" of the revenge of that Pharaoh on his stepmother.

Thebes.—The tomb has been found of Queen Meryet-Amun (d. 1440 B. C.) of the XVIII Dynasty, the daughter of Thutmose III and wife of Amenhotep II. The tomb had been robbed twice within the 400 years after her burial, the mummy rewrapped, and the tomb officially sealed. The beauty of the queen is seen by her head sculptured in wood on the second of three-nested anthropoid coffins.

Meydum.—The discovery of a pyramid built cumulatively in seven stories, and cased from top to bot-

tom, proves the method of the completion of a stepped pyramid. The measurements given in a nearby mastaba prove the cubit of about 2800 B. C. to have been 52½ cent. (20½ inches). A fine contemporary portrait in limestone of Sneferu, the first king of Dynasty VIII, was also found.

Tell el Amarna.—The excavation of the small temple has been completed, and it is known to be the "Castle of the Disc." A complex of royal buildings connected with the temple has been laid bare, consisting of the priests' quarters, the king's house, and a bridge which connects it with the official palace. Many pieces of sculpture of the "heretic" Pharaoh Akhenaten are of historical importance.

Gizeh.—Much discussion has arisen over the discovery of a new pyramid near the second pyramid of Gizeh. It is the small pyramid of Queen Khent-Kawes, believed to be the mother of Pharaoh of Dynasty V. Reisner maintains that it should not be called a Fourth Royal Pyramid, but that it should be counted with the seven small queen pyramids that surround the Big Three.

GREECE

Olynthus.—The many publications by D. M. Robinson on his excavations constitute the best research work in Greece of the year. Among his late finds may be mentioned the mosaic of Bellerophon on Pegasus slaying the Chimera, probably the forerunner of St. George and the Dragon. Other fine floor mosaics have been found, and also the best hoard of Chalcidic coins thus far known, consisting of 33 magnificent silver tetradrachms.

Ithaca.—Excavations in and near Polis, and the objects found, dating from Mycenaean times to the third century B. C. are claimed as proofs that settle two disputes of long standing, namely, that Thiaki is ancient Ithaca, and therefore that Leucas is not, and that the home of Odysseus was in north, and not in south, Thiaki (Ithaca).

Athens.—The second season of the work in the Agora has brought to light many valuable things. Three potsherds with part of the names of Themis(tocles), Aristeid(es), and Hipparc(hus), are now to be added to the already known ostraca (ballots) of ancient Greece. The Stoa of Zeus Eleutherios has been nearly cleared. Bronze and marble statuary, a marble figure probably from the nearby Hephaestiaeum ("The-seum"), and many inscriptions have been added to our knowledge of Greek art and politics. Most important are the finds of pottery which date from 1800 B. C. to late Byzantine times, and the many lamps dating from the 7th century B. C. to Roman times.

INDIA

Mohenjo-daro.—The three volumes *Mohenjo-daro and the Indus Civilization*, by Sir John Marshall, set forth in orderly fashion the results of his research at that site. An Indian seal found at Ur gives the date 3200 B. C. as the beginning of the building of Mohenjo-daro. The skulls found show four races at the Indian city: I. Proto-Australoid (peninsular Indian); II. Mediterranean; III. Mongolian branch of Alpines; IV. Alpines. The people cultivated wheat and barley, and subsisted on cereals, dates, beef, mutton, poultry, and fish. The writing on over 1,000 seals thus far found is not yet deciphered, but the pictographic signs are syllabic. Sir Arthur Keith called the district the "Mesopotamia of India."

ITALY

Cumae.—Maiuri has at last found the real shrine of the Cumaean Sibyl of Apollo. Off the great tunnel built by Agrippa, which has been supposed to be an enlargement of the ancient grotto, Maiuri found a trapezoidal shaped gallery 120 m. long, with 12 lateral galleries, all of Greek workmanship. It is a true subterranean basilica.

Herculaneum.—Every day proves the fact that the covering of Herculaneum is solidified mud and scoriae,

and not of lava, as the older books have always said. Many splendid wall paintings, a women's Bath with a mosaic of Neptune surrounded by fishes, and best of all, a marble group of a deer being brought down by hounds, are the most important of the many discoveries of the year.

Minturno.—The excavation by the Museum of the University of Pennsylvania of this great site has continued with good results. The city, thus far, shows three separate periods, not superposed, but side by side: The fifth century B. C. Auran-cian city, the Republican and the Imperial cities.

Publications.—The basis for research appears regularly in the *Notizie degli Scavi* and the *Bollettino of the Associazione Internazionale Studi Mediterranei*.

IRAQ

Nuzi.—In a temple shrine at Nuzi, about half way between Babylon and Nineveh, a clay tablet, 3 inches square, has been found on which is a map of a large private property with rivers and place names. It is the oldest map in the world.

Kish.—Research is fully documented in the publication of the Field Museum—Oxford University Expedition to Kish.

PALESTINE

Judea.—In the cave of Umm Qatafa in 1928 flints of the Acheulean period were found. This year rock drawings and carvings dating about 12000 B. C. were discovered which portray elephants, rhinoceri, hippopotami, and wild boars.

Shechem.—Cyclopean walls and the ruins of the north gate of the fortifications of Shechem, between Mt. Gerizim and Mt. Ebal, have been laid bare. There are two parallel walls 35 feet apart. The walls were 65 feet high and 50 feet thick. The ancient city covered 15 acres. The Canaanitish temple (1400 B. C.) of Baal-Berith and a Canaanitish fetish stone and many cult objects were also discovered.

Mugharet es-Sukhul.—The discoveries in 1925 and 1931 of Neandertal skeletons are supplemented by the finding by McCoun (May 3, 1932) of three more skeletons in a cave on Mt. Carmel. The Neandertal race became extinct about 40,000 years ago.

Research.—*The Excavation of Tell Beit Mirsim: I. The Pottery of the first three campaigns* has been issued as Vol. XII of the publications of the Schools of Oriental Research. The pottery helps to settle the chronological data from the third millennium to the 7th century B. C. A new research journal has just appeared: *Quarterly of the Department of Antiquities in Palestine*.

PERSIA

Tepe Hissar.—In a buried cache in a burnt building, gold cups, copper plates and daggers, alabaster ornaments, etc., have been discovered by the University of Pennsylvania Expedition. The finds date 2000-1500 B. C.

RHODES

Camirus.—A great find of painted vases of Rhodian, Corinthian, Attic, Laconian, and Phoenician types gives data for the development of painted terra cottas.

SUMERIA

Khafaze.—A temple of about 3000 B. C. has been cleared by the Iraq Expedition of the Oriental Institute of the University of Chicago, some 200 miles from Ur. It is surrounded by an oval-shaped wall, inside and against which is a series of store rooms. The finds include statuary with eyes inlaid with shell and with pupils of lapis lazuli or glazed faience set in with bitumen; and a plaque showing in relief horses attached to a chariot. This proves that the horse was used 1,000 years earlier than heretofore known. The men are short-headed, big-nosed mountain Armenoids.

SWEDEN

Valsgarde.—In a grave of about 650 A. D. has been found the best example thus far known of a Viking helmet. It is of iron and sheet bronze. With it were also found swords, one with a hilt adorned with gold and garnets. There were also many metal warhorse trappings.

SYRIA

Ras Shamra.—The library and school of scribes found in 1930 has now been completely excavated. A great jar of gold and silver jewels is noteworthy. Most important is the decipherment of 50 cuneiform tablets which give a great part of the 'Al'eyân Epic. This epic shows many parallels between the religious literature of the North Canaanites and the Bible. Albright says that this "new material will revolutionize our knowledge of Hebrew lexicography and poetic usage."

MISCELLANEOUS

Metropolitan Museum in New York.—The acquisition of an archaic Greek statue of about 600 B. C., six feet, four inches high, with a frontal pose and the left leg advanced, gives America the most representative example of the so-called earliest "Apollo" figures of Attic origin.

Sardis Gold Coinage.—Coins have been analyzed and found to contain 98.13 per cent gold and 1.6 per cent silver. Further study has shown that the casting and stamping of coins may now be supplemented by the proof that the Greeks knew the art of heating and cold working of metals, and then of striking coins without melting.

NECROLOGY

During the year there have died: at Carthage, Father Delatre, dean of French correspondants de l'Institut; Stephane Gsell, member of the Académie des Inscriptions; F. Noack of the German Archaeological Institute; L. B. Paton, Orientalist of Hartford Theological Seminary.

PAINTING

PAINTING

BY FLORENCE SEVILLE BERRYMAN

THE AMERICAN FEDERATION OF ARTS

MURAL PAINTING

General.—Well defined movements in the field of painting in the United States during 1932 comprised a decisive step towards the special branch of mural painting; a markedly nationalistic tendency which expressed itself both in "official" support of American painting, and in practical efforts to aid hundreds of contemporary American painters of ability, by means of outdoor art markets, which experienced phenomenal success from New York to California; and finally, fresh focusing of attention on early American painting, through the exhibitions widely held in celebration of the 200th anniversary of the birth of George Washington.

Washington Bicentennial.—It was not unreasonable to assume at the beginning of the year, that the nation-wide Bicentennial Celebration would provide a decisive inspiration in every field of art, but such was not the case with regard to painting. Nevertheless, it proved important; the outstanding creative effort it evoked was perhaps the series of fourteen commemorative mural paintings by thirteen members of The Mural Painters Society installed in the National Gallery of Art as part of the George Washington Bicentennial Exhibition, from March to the end of November. These murals, on the general theme of Washington's life, were predominantly conservative in character, flat and decorative in effect, with a red, white and blue tonality emphasized. The artists contributing, were Ernest Peixotto, Hildreth Meiere, Austin Purves, Jr., Arthur Covey, D. Putnam Brinley, J. Monroe Hewlett, Deane Keller, Tom Loftin Johnson, Ezra Winter, J. Mortimer Lichtenauer, James Daugherty, John Steuart Curry, and the late Gardner Hale. Aside from this project, the Bicentennial was celebrated

in painting chiefly through exhibitions of early portraits. The most notable was that held in the Corcoran Gallery of Art, Washington, D. C., assembled by the United States George Washington Bicentennial Commission, as it brought together a large number of famous works such as the Lansdowne portrait from England, the Vaughan portrait, (both by Gilbert Stuart), Savage's "Washington Family" and the earliest portrait of Washington, as a Virginia Colonel, by C. W. Peale.

Public Building Murals.—Mural painting appeared to be definitely in the ascendancy, with the completion of murals reported from all sections of the country, in many types of public buildings, religious, educational, municipal and commercial. Most of these murals were by American artists, and in a refreshing number of cases, artists native or resident in the respective localities.

Rivera and Orozco.—In addition, the two great leaders of Mexican contemporary painting, Diego Rivera and José Clemente Orozco, continued to work in several parts of the United States. Enthusiasm for these artists, as has been mentioned before, is definitely tied up with awakening consciousness of native art, since they belong to this continent and utilize indigenous themes. In connection with a large exhibition of his work at the Museum of Modern Art, New York City, at the beginning of the year, Rivera painted eight frescoes especially for the occasion, depicting a composite view of the metropolis. Later he undertook a large mural for Detroit. Orozco began work and completed portions of what is said to be the "largest fresco project yet conceived in the United States," entitled "The Epic of Civilization on the American Continent," depicting as its theme, the legend of Quetzal-

coat. This will decorate more than 3,000 square feet of wall space of the Baker Library at Dartmouth College.

Rockefeller Center.—Selection of artists to assist in the decoration of the eleven buildings of Rockefeller Center, New York City, provided impetus to renewed activity among American mural painters. The Museum of Modern Art, with the idea of affording them an opportunity to demonstrate their ability in this field, opened its new home in May with a large exhibition of murals by about fifty painters. This generous gesture had unfortunate results, as those represented did not in most instances, acquit themselves very creditably, probably because they were primarily easel painters. Nevertheless, when commissions were given out for the decorations for International Music Hall in Rockefeller Center, a number of American muralists were recipients: Ezra Winter, Georgia O'Keeffe, Buk Ulreich, Stuart Davis, Louis Bouche and Witold Gordon. Boardman Robinson was commissioned to paint a mural for the lobby of the R.K.O. building in Radio City. Commissions were also awarded to three foreign artists,—Diego Rivera, Frank Brangwyn and José Sert for decorations for the seventy-story R. C. A. building.

The Metropolitan Life Insurance Company commissioned about the same time three American painters,—D. Putnam Brinley, Nicholas Pavloff and Edward Trumbull—to paint decorations for its new building in New York City. Mr. Brinley's portion of the work, decorating corridors, lounges, section heads and one dining room, was completed.

Milwaukee County Court House.—Perhaps the keenest interest aroused by any mural painting during the year, aside from the New York City events, was that concerning the monumental project which Francis Scott Bradford completed for the new Milwaukee County Court House. He had been selected in a nation-wide contest from about 30 entries. His work, consisting of 23 panels, comprising one main mural and a panel

for each court room, led to his election as an Associate of the National Academy of Designs, but caused a great deal of controversy in Milwaukee, although it was highly acclaimed by connoisseurs and critics. Such lively public interest, even though partially adverse, is an encouraging trend.

Other Murals.—Some conception of the widespread activity in mural painting may be gained from brief mention of a few works completed in various parts of the country. In Birmingham, Ala., two murals were executed for the new court house by John Norton. In New England, Barry Faulkner painted a series for the new dining hall, Phillips Academy, Andover, Mass., and a mural by Alice Stallknecht was unveiled in the Old Congregational Church of the fishing village of Chatham, Mass. In New York City (in addition to paintings already mentioned) a redos depicting the sea, by Gordon Grant, was installed in the Chapel of Our Saviour, Seamen's Church Institute; Will Samuel Taylor finished the first of a series representing human life in the iron age, for the American Museum of Natural History; and James Monroe Hewlett painted murals for the new Bronx County Building. The First Presbyterian Church of New Rochelle, N. Y., acquired Augustus Vincent Tack's "Sermon on the Mount." In Pennsylvania, a triptych by Olle Hjortsberg was placed in the Erierson Memorial room at the John Morton Memorial Museum, Philadelphia. A mural symbolic of Pittsburgh by Glenn Moore Shaw, was completed for the Federal Reserve Bank of that city. Henri Matisse, leading French modernist, painted for the museum of the Barnes Foundation, Merion, Pennsylvania, a mural having a theme of dancing figures. In Washington, D. C., James M. Newell painted a fresco for the board room of the Potomac Electric Power Company. The little village of Covington, Mich., received a gift of an altar piece for the Lutheran Church, depicting "The Last Supper" by Theodore Johnson. Several artists of St.

Louis completed murals: Oscar E. Berninghaus did three panels for the Lennox Hotel; Joseph Jones a decoration for the new studio of Radio Station KMOX; and Gisella Loeffler Lacher, fanciful decorations for Barnes Hospital. At the University of Colorado in Boulder, a mural, "Dramatic Masks" by F. C. Truckess, instructor in art there, was unveiled in the Little Theatre. This catalogue by no means exhausts the list. Of related significance, was the appointment of a noted mural painter previously mentioned, James Monroe Hewlett, as new Director of the American Academy in Rome.

MUSEUM ACTIVITIES

Metropolitan Museum.—A nationalistic trend to which impetus was added by the depression, early manifested itself in the action of leading museums. Under its new Director, Herbert E. Winlock, the Metropolitan Museum of Art, inaugurated a new policy of purchasing contemporary American paintings from American art dealers, acquiring in this way, thirteen canvases before the first of July.

The Whitney Museum, New York City, opened an exhibition of contemporary American painting, in November, (which it proposes shall be a biennial event) and devoted the sum of \$20,000 to the purchase of outstanding works; a very real encouragement to American painting.

The Museum of Modern Art, New York City, in addition to the mural exhibition mentioned above, gave further emphasis to American art in one of its most important displays, a review of 70 years, for which it obtained many important loans. The most notable was Whistler's "Mother," lent by the French Government from the Louvre, which proved to be the star exhibit, as was expected.

CURB MARKETS

In addition to such recognition, efforts in behalf of large numbers of painters and other artists suffering from the depression, took the form of art markets, chiefly in the open,

in many large cities, which in nearly every instance, enjoyed phenomenal success. These curb markets had something of the character of Paris' famous "foire aux croûtes." New York City started the movement in May, with such results that two additional affairs were held in November, one of them indoors under the auspices of leaders of New York society, which is to continue all winter. Similar outdoor art marts took place in Chicago, with the direct aid of the Art Institute; in Evanston, Ill., Cleveland, Detroit, Santa Barbara, Dallas, Tex., and Washington, D. C. An interesting aspect of these markets was that in addition to the large numbers of cash sales, there was a lively element of barter, paintings and other works of art being exchanged for a great variety of tangible and intangible commodities, ranging from a suit of clothes to a year's board. All of which brought American painting to the "man in the street" on more intimate terms than it has been in many decades.

AMERICAN EXHIBITIONS

New York and Chicago.—Also in keeping with the times, several well-known galleries in New York and Chicago, offered series of exhibitions of paintings by American artists of recognized ability, at the uniform price of \$100 each, which fully repaid the organizers. Record-breaking sales, moreover, by many outstanding American painters in one-man shows, proved that there is very real public appreciation of native painting, when it is placed within reach of the average citizen, even during such trying times as the present.

Trend of Native Subjects.—A related trend discernible in various annuals and other important exhibitions was the utilization by American painters, of native and frequently local subject matter. This was noted in such widely separated exhibitions as the Corcoran Gallery's Biennial of Contemporary American Painting, the annual exhibition of Minneapolis and St. Paul painters, the Chicago Society of Artists and the Los

Angeles Museum's annual painting and sculpture show.

Paintings by Indians.—Popular interest in American painting, whether contemporary, early American or "primitive," which continued unabated, also extended with perfect logic and increased enthusiasm, to paintings by contemporary American Indians. The opening, at the Grand Central Art Galleries in New York City, of the Exposition of Indian Tribal Arts, including 500 paintings, with more than thirty tribes represented, had enormous reverberations in the press and periodicals. A portion of this exhibition, sent to the 18th Venice Biennial, was the most popular feature of the American display there; immediately after the opening, the Indian section was invited to be shown in Budapest, Hungary.

INTERNATIONAL EXHIBITIONS

Venice.—It is not to be inferred, however, that any "policy of isolation" appeared in the field of American painting. There was beneficent international exchange of art, signalized by a number of outstanding events. American representation at the Venice International Exhibition was made possible by the generosity of George D. Pratt. Under the direction of Martin Birnbaum, American art was shown for the second time in our own building, where it filled four galleries.

Los Angeles Olympic Show.—A great Olympic International Exhibition of Art, in which all the exhibits had to definitely relate to sports, was held for one month in Los Angeles, in connection with the Xth Olympiad. Organized by the American Federation of Arts under the direction of Leila Mechlin, it included more than 1,100 exhibits, over 400 of which were paintings, representing 31 different nations. It enjoyed a tremendous popular appeal, drawing a daily attendance of about 15,000 persons with 25,000 on Sunday afternoons throughout its duration.

London.—Leading American museums and collectors made distin-

guished loans of paintings to the great exhibition of French art at Burlington House, London, at the beginning of the year. Finally, to mention but one more international phase, numerous exhibitions of paintings by European and Oriental artists were held in many parts of the United States.

HONORS AWARDED TO MELCHERS AND LIE

Mention should also be made of special honors to two American painters. Shortly before his death, the American Academy of Arts and Letters at its annual exercises, bestowed upon Gari Melchers the medal of the National Institute of Arts and Letters, and opened a special exhibition of his work during the past half century. The second honor was European in origin: Jonas Lie, who came from Norway in his boyhood, was made a Knight of the First Class of the Order of St. Olav, by King Haakon VII of Norway.

BIBLIOGRAPHY

Among the many books on painting published during the year were several definitely connected with events and trends mentioned above. Reflecting the Bicentennial were two outstanding publications: *The Life Portraits of Washington and Their Replicas* by John Hill Morgan and Mantle Fielding, and *Portraits of Washington* in three volumes, by Dr. Gustavus Eisen; also *Gilbert Stuart* by William T. Whitley, with a number of less important and less scholarly works. *Pueblo Indian Painting* by Dr. Hartley Burr Alexander, contains 50 reproductions in colors, of water color paintings such as were seen in the Tribal Arts Exposition. Several additional volumes appeared in the Whitney Museum's "American Artists Series," that on *Glenn O. Coleman* by C. Adolph Glassgold, being the 19th. *Making Water Color Behave* by Eliot O'Hara, is an excellent textbook on this medium. Notable works on European painting by American and foreign authors included *Gothic Painting in France, XIV and XV Centuries* by P. A. Lemoisne; *An*

SCULPTURE

Account of French Painting by Clive Bell; *Foundations of Modern Art* by M. Ozenfant; *The Post-Impressionists* by Adolph Basler and *The Modernists* by Charles Kunstler; *A History of Spanish Painting*, Volume IV, beginning of XV Century through the Hispano-Flemish period, particularly in Castile and Leon, by Chandler Rathfon Post; *A History of Sienese Painting* by G. H. Edgell; *The Paradise of Tintoretto* by J. Howard Whitehouse; *Italian Pictures of the Renaissance* by Bernhard Berenson; *English Painting from the Seventh Century to the Present Day* by Charles Johnson; and *The Brushwork of Rembrandt and His School* by A. P. Laurie.

NECROLOGY

The United States sustained great loss in the deaths of such outstanding painters as Emil Carlsen, famous for his marine and still life paintings; Carleton Wiggins, Francis Jones, Gardner Hale, muralist; Elliott Daingerfield, Glenn O. Coleman, noted for his street scenes; Louis Maurer (aged 100 years), last surviving member of the Currier & Ives firm; and his son, Alfred Maurer, a leader of the modernist movement in this country; Ignaz Marcel Gaugenig, well known Boston painter; Gari Melchers, portrait and figure painter of highly distinguished talent, and Will H. Low, mural painter.

SCULPTURE

BY ROSE V. S. BERRY

ART CRITIC, WRITER AND LECTURER

INTRODUCTORY

American sculpture today is as modern and conglomerate as its people. By the very nature of human events no American art could have the slow growth and formative background of a pure racial expression. There has never been a time when talent from the old world was not amalgamating itself with that of the American colonies or what was later the United States. Consequently, evidences of a derivative declaration are plainly to be seen in American sculpture.

The beginnings of art lie in the beginnings of culture,—art being that thing which takes form as the result of man's thought, the thing that would never exist if man didn't think. The year 1932 has supplied material for an unusual survey of the total American output. An exhibition, and a series of articles by Harriette Merrifield Forbes, early in the year, placed two phases of the art before the American public,—the public that reads and attends exhibitions. The articles consisted of a rather thorough study of colonial and New England grave stones, which certainly

present the first American effort in bas-relief. The exhibition held by the Newark Museum was of the first American sculpture in wood, examples of which are rarely seen. Both of these projects were of aesthetic significance in the history of American sculpture.

MEMORIAL SCULPTURE

Grave Stones.—As a sunken relief technique, executed by untrained men in an untried medium, all the grave stones carry an artistic appeal. Even the huge uncut boulders, with only one side smoothed for deeply incised letters, present an interesting surface. Given chisels and a mallet, sandstone, granite and slate mediums, the sculptor had himself to depend upon for the result which was frequently original. From the rudely shaped block with a beautifully lettered scriptural quotation, (1658), to those carved with rosettes and death heads with wings, the stones pass with the first several decades. Then came a modified engraving technique more nearly touching the surface aspects of sculpture. Side borders of leaves, or leaves and fruit came into usage, with the hour-

glass and the cherub's head as central motifs. Then, with the mastery of their medium, more ambitious attempts are made. One family, John Stevens, his son, John Stevens II, and the grandson, John Stevens III, are among those whose skill in the art was recognized. They carried the method to the gritting of some surfaces, the cushioning of others, the taking off sharp edges of the incisions and sinking the design a bit here and there. Their stones have a definite charm. The classical influence brought the Willow Tree Era, and the scroll. The passing years have softened crudities, blurred faults, and grown with moss some of the deeper cutting, but more than ever this art of two and three centuries ago has its place in the annals of American sculpture.

Public Memorials.—From the simple, unpretentious quality of these memorial stones one passes willingly over the lathe-turned angels, garlanded doves, and passive lambs, to the memorials carved by the sculptor of recent years. One recalls with pleasure and the accompanying sympathy attendant upon their consideration, the Milmore Memorial of Daniel Chester French; Karl Bitter's Villard Memorial; Bela Pratt's Butler Memorial; Frank Duveneck's Memorial to His Wife; and the impressive figures by John Gregory, Mario Korbel, Rudolph Evans, Robert Aitkens, and others. Towering above them all, however, is the Adams Memorial by Saint Gaudens, which John Galsworthy pronounced worth an American trip to see. (Called by some, "Grief," in Rock Creek Cemetery, Washington, D. C.)

SCULPTURE IN WOOD

The Folk Exhibition held in the Newark Museum, contained subjects in wood sculpture of ships' heads, imaginative figures, and portraits. Owing to the lack of knowledge of native stone and marble, and to the impossibility of bronze casting, the first American sculpture was carved in wood. The medium was usually selected for its durability, the polish (or finish) it would take, and with

little or no consideration of what it might add to the artistic rendition of the subject. William Rush, a Philadelphian, was one of the foremost wood-carvers. He was quite famous for his ship's heads. His figure of the "Indian Trader," on the ship *William Penn*, was copied by several London artists; while his "River God," for the ship *Ganges*, is said to have been revered by the Hindus, who came by the boat load to see it. The tests for the sculptor working with wood are those for the artist modeling in clay. Sculpture is the art of presenting a real or an imaginative object in three dimensions. It must have sufficient elevation to rise from the indefinite mass, and it must be strong enough to sustain its height. Seeing so much that he recognizes as commonplace, the observer is prone to pass over the aesthetic problems of the art. The restrictions that must be accepted by the sculptor are the elements that condition all his work—the difficulties which the artist must triumphantly surmount.

PROBLEMS IN SCULPTURAL ART

The Medium.—Problem one involves the medium, each material requiring a different technique and yielding a different result. Brick, porcelain, and alabaster cannot give the purity of Carrara marble, neither can the richness of Pentelic, or shadow-holding travertine, give the depths of bronze. Granite will not give the effect of sandstone, and both will differ greatly from wood. Walnut cannot resemble pine or ebony, redwood with its fibrous veining cannot masquerade as oak. Cement, glass, lead, and aluminum have each taken a place in modern exhibitions with its own peculiarity to which the sculptor must submit. In truth this is not a problem of mediums—it is a law of mediums.

Planes, Lines and Masses.—Problem two lies in the adjustment of planes, lines, and masses. Lines of the composition follow in some general way the sharp outer edges that become the profile. The planes are the protrusions and the recessions by which the

form emerges from the block. The masses are the related parts which are brought into the whole by adjustment, proportion, and balance.

Theme and Quality.—Problem three deals with subject matter which to-day is almost unrestricted, and problem four is the greatest test of the artist's skill when he must give a living quality to the block he carves or the clay he models.

Modernist Problem.—There is yet a fifth problem for the ultra modern sculptor since he turns his back upon likeness and characterization. In their stead he prefers an arbitrary organization or a conventionalization, and frequently an exaggerated distortion to avoid in sculpture that which is literal or obvious. While it is true, strictly speaking, that sculptors today at their pleasure defy some of these laws, the first four problems are the essence of the art; they exist for every sculptor, and he ignores them at his peril as some of the one-man shows of the season will prove.

EXHIBITIONS

Paul Bartlett.—A memorial retrospective exhibition of the work of Paul Bartlett, six years dead, was interesting for the observer as well as fortunate in reestablishing the artist's place in American sculpture. As the son of an artist, Paul Bartlett was born into the atmosphere and took it as a matter of course that he was admitted to the *Ecole des Beaux-Art* at the age of fifteen. He had technical efficiency and the poise of a craftsman years before the average student acquires them. While all that he did was by no means great nothing was entirely bad, and over the years he was able to live up to a high standard in his output. He was given to experiments with patina and color; there is so much of the latter that some of his work has a jewel-like beauty. With figures he seldom failed, with animals he was largely successful. For many, his imaginary portrait of Michelangelo takes first place. It is sincere in technique and delightful in style and appeal.

Evelyn Beatrice Longman, (Mrs. Batchelder), who has been employed

for the last few years in subjects associated with architecture, collected material for a show early in the season. In her subjective sculpture she is classically inclined and dependent largely on size for strength. She is at her best, when one omits her splendid work in bronze doors, in portraits which she does with sympathy, and in the case of "Peggy," a portrait of Margaret French Cresson, with refreshing charm and vivacity.

Alfeo Faggi.—For the first time in several years, Alfeo Faggi, Elie Nadelmann, and Alexander Archipenko gave one-man-shows in New York. All three are American by adoption, each in his way making a notable contribution to the sculpture of this country. Alfeo Faggi has the deeply seated Italian mysticism from which he will never escape. He frequently resorts to an ascetic stylization difficult to present but convincing even when the modeling is arbitrary and hardly sufficient. His portraits are extraordinary; they have a sensitiveness that escapes the sentimental and achieves the spiritual. His wonderful head of Noguchi was purchased by the Minneapolis Museum.

Elie Nadelmann, another man of rare attainment, has several manners of expression. The exhibition consisted of thirty pieces,—terra cottas, wood-carvings, bas-reliefs, bronzes and marbles. His serio-comic figures and groups are more than amusing. They are done with a skill and comprehension that would be difficult to imitate. His large Greek heads with a pre-Phidian spirit have an amazingly universal content.

Alexander Archipenko has for years astonished art lovers with his daring experiments. By hollowing form where it should have been rounded he has produced an emphasized line that has shown the most unseeing person how lovely the human body is. With all kinds of defiant elongation, Archipenko has still retained an exquisite grace. He has evolved new metal combinations which have added to the novelty of his statues. This year, however, the artist has refrained from his sensationalism and his admirers

have enjoyed his sober mood and the touch that is always Archipenko.

Alec Miller showed thirty pieces of wood sculpture of children done over a period of twenty years.

George Stanley (in Los Angeles) a sculptor whose work is very architectural in character, impressed the visitors to his exhibition with the fact that the modern man with a feeling for structure can closely ally his modeling with the art of building.

Warren Wheelock, another sculptor making variety for his output by working in caen stone, black walnut, butternut, teakwood, oak and bronze, secured favorable comment for his show.

Antonio Salamme gave an exhibition in which his portraits of Ethel Waters, Walter Sachs, Fannie Hurst, and Paul Robeson were included.

John Flannagan, forsaking for the time being his fine work in bronze,—there is little anywhere that is better than his portrait of Augustus Saint Gaudens—brought out work in field stone making subject and medium so much a unit that it seemed they might always have been.

Richmond Barthé, a colored sculptor born in Richmond, Va., but living in Chicago, gave his first important exhibition this year. With fine things to his crédit his work revealed unmistakable promise of much to come. Having found the essentials of good modeling with unfailing discernment, Barthé stops there. Possessing fine character and great strength, the critics have pronounced some of his work almost profound.

Arthur Putnam, said by Rodin to be the greatest animalier since Barye, is being given a retrospective exhibition in San Francisco. Putnam died two years ago in Paris, but most of his work was done in San Francisco before he was overtaken by invalidism. Putnam has told the whole story of animal life in his modeling. As stealthy hunters, or murderers preparing to spring upon their prey, Putnam has rendered his animals with such simplicity that they have the quality of the ancients. It is in the loving pairs, or battling groups of underfed

wild things, however, that Putnam excels.

PLACEMENTS

Leo Lentelli's Cardinal Gibbons was recently unveiled in Washington, D. C. Robert Aiken's equestrian statue of Gen. O. O. Howard, a gift of the State of Maine, was unveiled at Gettysburg, in November. Randolph R. Evans' statue of Gen. Robert E. Lee, was unveiled in Richmond, Va., on the spot where he assumed command of the Confederate forces. A. Phimister Proctor's equestrian statue of Sheriff "Til" Taylor was erected in Pendleton, Ore. Ulric H. Ellerhusen's monument to the Kentucky Pioneer has been placed in a delightful landscape setting at Harrodsburg. A copy of Houdon's statue of George Washington, was unveiled in Albany, N. Y. Avard Fairbanks' War Memorial commemorating the services of the 91st Division, A. E. F., has been erected at Fort Lewis, Wash. Hermon A. MacNeil's memorial to the Confederate Defenders of Fort Sumter, was dedicated in Charleston, S. C., in October. Paul Manship's portrait statue of Lincoln at the age of twenty-two, has been placed in Fort Wayne, Ind. Augustus Saint Gaudens' "Diana" that tipped the tower of Madison Square Gardens for so many years, has been given a permanent place in the court of the Pennsylvania Museum, in Philadelphia.

COMMISSIONS, PRIZES AND AWARDS

Individual Awards.—John Flannagan and Antonio Salamme were awarded the Guggenheim scholarship. John McKnight of Springfield, O., received the Prix de Rome. Alexander Calder and Paul C. Jennewein received the important prizes of the Pennsylvania Academy of Fine Arts. Gertrude K. Lathrope, Albert Stewart, and Pietre Montano received the sculpture prizes from the National Academy of Design. The Allied Artists gave their first prize to Abastina Eberle, with honorable mention to J. Juszko, Karl Grupe, and George Lober. The National Sculpture So-

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ciety in its exhibition of three hundred bas-reliefs, medals, and plaques, gave their first prize to Anthony de Francisi. For the second time (see 1929-30), a representative assemblage of their work placed the Alumni of the American Academy in Rome before the American public. In competition with American sculptors over the United States, these men each year are awarded the Prix de Rome, entitling them to three years study in Rome. Among the 23 Fellows of the American Academy in Rome exhibiting were Hermon A. MacNeil, Paul Manship, Albin Polasek, John Gregory, C. Paul Jennewein, Gaetano Cecere, Edwin R. Amateis, Chas. Keck, Leo Friedlander, Walker Hancock, Thomas J. Jones, Alvin Meyer, David K. Runins, and Lawrence T. Stevens.

Rockefeller Center.—The most interesting project of the year, combining sculpture with architecture and for interior decoration, is the Rockefeller Center. Fifty sets of sculpture will ornament this \$250,000,000 group of buildings. Lee Lawrie will execute and cast the glass decorations for the main entrance. Robert Laurent, Mrs. Gwen Lux, and William Zorach are each doing large figures for the interior which will be cast in aluminum. Maurice Sterne, Ruben Nakian, Alexander Archipenko, Warren Wheelock, and Karl Walters are some others who have already been named as artists who will contribute to the sculptural ornamentation.

Commerce Department Building.—Among the commissions taking definite shape in Washington, D. C., are the pediments of four sculptors for the new Department of Commerce Building. The work of Frederick G. Roth and Richard H. Rechia is well known to the eastern public, as is that of Selewski, the third artist, but Haig

Patigian of San Francisco, who is doing the "Aviation" pediment, is the first western man to receive such an important commission.

Washington Bicentennial.—The city of Washington has been the center of interest in celebrating the Washington Bicentennial, which concluded a ten-year plan of beautification for the capital combined with honoring the first American President. Sponsored by the National Commission of Fine Arts, and supported by many national organizations, 500 pieces of sculpture were assembled in honor of the occasion, the great majority having to do with Washington, the President, either in association or the history of the times. Heroic statues of Washington and his contemporaries were placed in the rotunda of the United States Museum. Paul Bartlett's equestrian statue of Lafayette had the central position. The section including the historical group presented J. Q. A. Ward's statue of Washington, in replica, since the original stands on the steps of the Sub-Treasury building in New York. Figures of Thomas Jefferson and Alexander Hamilton by James E. Fraser; the Houdon busts of Washington; The Pilgrim statue by Saint Gaudens; Lief Erickson by Sterling Calder; Henry Clay by Edmond Quinn, were among the portrait statues of Gouverneur Morris, Benjamin Franklin, Nathan Hale, Major André, and many others, linked with early American history. Among the 500 pieces of sculpture were subjects from Herbert Adams, Karl Bitter, John D. Brein, E. W. Keyser, Ben. T. Kurtz, Albert Laselle, Hilda K. Lascari, Gertrude Lathrope, Anna Hyatt Huntington, Edith B. Parsons, Ruth Sherwood, Alice M. Wright, Max Kalish, Leo Lentelli, Arthur Lee, Edward McCartan, Bashka Paeff, Wheeler Williams, A. A. Weinman, and others.

XXVI. THE ARTS

ARCHITECTURE

By HARRY F. CUNNINGHAM

PROFESSOR, UNIVERSITY OF NEBRASKA

GENERAL

There has been little building, for the past several years, of the sort which might deserve detailed attention under the title Architecture. The direct result has been that some talented architects have had to turn their talents into other fields. This, of course, is too bad. There is compensation, though, in the accompanying fact that a great many careless practitioners have had to turn their careless hands to other activities, and these careless brethren will not, any more, encumber the "lists" when things become normal again. The number of really good architects, at any given time, is small. A period of depression such as the present, has in its ultimate good, in that it eliminates from the ranks of all of the arts those who should never have been trying to practice the arts anyway, but who had drifted into these pleasant fields in order to take advantage of abnormal opportunities which seemed to offer.

Even in such times as the present, those architects who are the most advertised, have had—and are having—a certain amount of building to design and direct. It is one of the strange paradoxes of our paradoxical age, that the most advertised architects are seldom the best; so we find that the real leaders of the profession, often enough, have but little to do in their proper profession, and are turning their talents—for the time being—into the related fields of painting, sculpture and literature. We know of one talented architect who has found employment for talents that would otherwise be idle, through giving a series of lectures on Music Appreciation; but the sad aspect of all this is that some of the great offices, wherein the greatest examples of contemporary architecture have been conceived, born and brought to distinguished maturity,

have literally had to close their doors for the time being.

One very interesting, and very important thing has been happening in the field of building materials. There have been many new materials developed, and interesting new uses for existing materials have been discovered. There has been time for experimentation in these lines, and intelligence has directed the experimentation. Also, manufacturers of building materials have turned, more and more, to the artists for the design of articles which, formerly, were made in a sort of hit-or-miss fashion, without design. This is another indication of an effort, all along the line, to become sufficiently "fit" to survive. And it is a very good thing, the results of which should show, in a few years, in a vastly improved public taste.

BUILDINGS

Radio City.—Of course, one must begin one's catalogue of buildings with Radio City on Fifth Avenue in New York, by Raymond Hood, Harvey Corbett and some others. The promise, which we expressed in *THE AMERICAN YEAR BOOK* for 1931, of the collaboration—in the working out of a complete symbolic scheme for the decorations of this mammoth group—of Hartley Burr Alexander, has not been fulfilled in its entirety. This failure of another ideal was not due either to Dr. Alexander or to his scheme, but rather to a characteristic unwillingness on the part of a large group of men whose interests are primarily "practical," to recognize the real value of the work of a scholar. We are, and we may as well admit it, in the midst of an illiterate age, and the current snobbery of "low-browism" must be allowed to have its full day. There is some consolation for the partial loss of Alexander's scheme in the fact that some of his collaborating artists, notably Lee

Lawrie and Hildreth Meière, have continued their connection with the Radio City project, and their additions to it will satisfy the craving for beauty which the Architects' "pure" solid geometry would never have satisfied. And, parenthetically, in spite of "depressions" and "modernism" and all other social diseases of the moment, the world does continue to have—and therein is much cheer—the craving for beauty which has always distinguished man from many of the lower animals. We have seen Lawrie's models for the main entrance of the main building, and there are not sufficient superlatives in the language properly to appreciate that stunning work. It is noble and it is beautiful. The first of these qualities makes it akin to the ponderous pile above it, whose very size makes it noble, and whose setbacks appear to be very well handled—always in the purely intellectual realm of solid geometry—and the beauty of Lawrie's entrance will illuminate the whole group and help marvelously to atone for what might otherwise be a bit too stark and brutal. Additional cheering news comes to us, indicating that Frank Brangwyn will contribute some of his own kind of beauty to the group in the way of mural decorations.

Washington Cathedral.—The College of Preachers of the Washington Cathedral by Frohman, Robb and Little is a delightfully human addition to the great archaeological pile which the Cathedral has threatened periodically to become. The Cloister, particularly, is one of the most pleasant bits of Old World echo that we have seen in the New World. The old forms have been handled with a freshness and a freedom that are truly modern in the best sense, and the planting in the Cloister complements the architecture admirably. The interiors are disappointing in their poverty.

Perfect "Modern" House.—There is a house of "ferro-concrete" on one of the Thousand Islands, in the St. Lawrence River—the house by John Walter Wood—which is a perfect example of good "modern" ar-

chitecture. It represents the good middle ground between the rich past and the present (which tries to be aesthetically poor), which is the proper ground upon which to build a real "Modern Art."

"A Machine to Live In."—Violently opposed to this successful, and appropriate, modern effort are such things as a house at Ossining, N. Y. (*Architecture*, January, 1932), in which the cult of the geometer has been carried to such a ridiculous extreme that one may say that this "house" fulfills, as no other house ever did, Corbusier's absurd statement that "a house is merely a machine to live in." We believe, and we have the temerity to state, that human beings—especially American human beings—will never be content to live in "mere machines." We refrain from mentioning the names of the architects of this "house," for they have proved themselves capable of fine things, which this one, most assuredly, is not.

The Chicago Board of Trade Building by Holabird and Root is good, although less so than many of its predecessors by the same firm. A great mural by John Norton, in the Trading Room, is the finest thing that one remembers from this great pile, a building that is distinctly reminiscent, in its masses, of Goodhue's design for the *Chicago Tribune* Building, but not at all reminiscent of Goodhue in the poverty of its details. Windows are too close to the corners, for one thing. Practical considerations of light and air make the corners of a big building difficult to handle, but the competition design of Goodhue, above referred to, handles the corners well in masses similar to this Board of Trade Building. And these corners are extremely well handled, by John Mead Howells, in the Panhellenic Building in New York City.

The U. S. Diplomatic Establishment in Tokyo by H. Van Buren Magonigle is one of the finest things that an American architect has ever done anywhere. It is just as American and just as "modern" as a group of buildings could be, but it

is rich in detail and it has quality such as can only be put into a building by one whose knowledge is rich and who is sensitive to the subtle thing called "quality." Every detail shows the loving care and the thorough study that only a great master can give to his work. We have seen a letter from a recent principal occupant of this group, to the effect that it is a pleasant place in which to live and work. The "Establishment" was inexpensive to build; it is exquisitely beautiful, and it is perfectly appropriate for its uses and for its location. Thus it fulfills admirably the three requirements of all great art—appropriateness, economy and beauty.

EDUCATION

In most of the schools, the time-honoured habits of developing "paper architects" goes merrily on. In some cases the "paper" is perilously thin, for in those cases, the fine, rich backgrounds of tradition have been literally thrown overboard lock, stock and barrel, and the students are being encouraged to plot their courses over the wild seas of the current craze for rampant geometry. The craze, incidentally, is quieting down very noticeably, but schools, habitually, are tardy in noticing such things. And these geometric gentlemen will find, in a few years, that their vocabularies are incomplete—empty even—and they will have to begin, at too late a date, to gather some appropriate "backgrounds," or else they will have to turn their talents into other fields wherein a knowledge of simple mathematics, to the exclusion of all other knowledge, is sufficient knowledge. The Beaux Arts Institute of Design, which has been leading the "modern drive,"

seems to have awakened to the danger of excess in this direction (as in any other), and their problems this year indicate a desire to bring the students back to a safer, saner middle ground.

PUBLICATIONS

Books.—Quite the finest thing that has appeared in many years, came out this year, in a limited edition from the Oxford University Press. This is an excellent translation, by William McK. Stewart, of Paul Valéry's *Eupalinos, or the Architect*, a Socratic dialogue on architecture, music and other arts. It is a book which should have the thoughtful study of every architect worthy the name. Oxford has published another book of considerable interest to American architects, *The Homes of the Pilgrim Fathers In England and America*, by Martin S. Briggs. In this book (incidentally, a fine bit of book-making), one finds the origins of our own "indigenous" Colonial architecture—at least that part of it which developed in New England—uncovered in detail, with many good illustrations.

Journals.—In the field of periodicals, *Architecture*, published by Scribner and edited by Henry Saylor, leads the field in quality, general interest and intelligent choice of material. In a field of similar, but less special interest, *The House Beautiful* is uniformly good and uniformly superior to the other periodicals in the same field. If one has a fancy for the "funny papers", a curious thing called *Shelter*, published expensively in Philadelphia, and intended to supplant "all other educational agencies," will afford some amusement. But a very little of this ultra modern organ of the "Soviet Spirit" in Art will go a very long way.

MUSIC AND THE OPERA

BY CATHERINE SMITH BAILEY

MUSIC REVIEWER, *Christian Science Monitor*

EFFECT OF THE DEPRESSION

The year 1932 has wrought as many changes in music as it has in other

fields. Financial stress has shown itself all too clearly in this branch of art which has, in its less popular

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forms, always been treated as the plaything and hobby of wealth and social aspiration. The inability of individuals to make the enormous contributions of earlier years to the support of opera, orchestras, chamber and choral music has brought suffering to many musicians thrown out of employment. The continued mechanization of music for moving picture houses, formerly a source of employment, has intensified a situation unpleasant two years ago, ominous last year. Musicians who had spent years fitting themselves conscientiously for first rate performance and instruction have been faced with starvation. Those musicians who are still employed have everywhere accepted cuts in salary or have contributed heavily from their salaries to deficits incurred by their organizations, deficits formerly taken care of by subscribers.

BENEFIT CONCERTS FOR UNEMPLOYED MUSICIANS

Musicians' Symphony Orchestra.— Attempts at relief have been numerous, especially in New York City which a large number of musicians have always made their headquarters. An orchestra of 200 men, called the Musicians' Symphony Orchestra, was assembled and gave a series of concerts. Sandor Harmati, the regular conductor, had the task of choosing his men from the multitude who applied. He interviewed 1,000 men. "These men," said Mr. Harmati in an interview in *The New York Times*, "are not alone the rank and file of orchestra players. Nor are they by any means 'incompetents' forced out by qualitative competition. Among them are six former conductors of orchestra and opera, half a dozen former concert masters and 24 men who not long ago were 'first desk' men in great orchestras. As economy forced these orchestras to curtail their ranks, the players have streamed to New York from all parts of America and Europe. There are violinists who have given concerts from coast to coast, wind players who have been distinguished soloists." The 1932 season brought a series of five concerts by this orchestra at the Metropolitan Opera

House. Each player received a Union fee, and the proceeds of the concerts were distributed among unemployed and needy musicians. Stokowski, Damosch and Beecham gave their services as guest conductors at three of the concerts. Tibbett and Schumann-Heink contributed appearances as soloists, as did José Iturbi, pianist and harpsichordist. A series of 20 concerts has been arranged for the 1932-1933 season to be given on Tuesday evenings at the Metropolitan Opera House. Various guest artists and conductors are scheduled for these concerts each of which will provide about \$15 for every player.

Philharmonic Special Concert.— Other benefits for the unemployed included a special concert by the Philharmonic Symphony on April 28, for which Toscanini returned from Italy. At this concert the Schola Cantorum sang in Beethoven's Ninth Symphony with Messrs. Pinza and Martinelli and Mmes. Rethberg and Matzenauer as soloists.

Relief Recitals.— Josef Hofmann gave his only concert of the season on April 5 to aid the needy. He played two concertos, the orchestral accompaniment being provided by Damosch's radio orchestra. Horowitz, the pianist, Milstein, the violinist, and Platigorsky, the violoncellist, played on Sunday, April 3. On May 3 Miss Hess, Mr. Bauer and Mr. Schelling played Bach's Concerto for three pianos with the Musicians' Symphony Orchestra. Paderewski gave a concert at the Madison Square Garden before 16,000 listeners on Feb. 8. The receipts were \$33,500, making a large sum available for the benefit of the unemployed.

DISRUPTION OF THE CHICAGO OPERA COMPANY

Opera, worn like an orchid in the buttonhole of wealth, was one of the first branches of music to show the results of the depression. The Chicago Opera Company found itself in dire financial straits. Appeal after appeal was issued to the Friends of Opera. Members of the company all accepted drastic cuts, but there was not enough money for a guarantee fund. With

the death of Edith Rockefeller McCormick, long an ardent supporter of the opera company in Chicago, and the collapse of the Insull finances followed by the departure from this country of Samuel Insull, there was no one to bolster up the Chicago Civic Opera Company. For this season, the company is "suspended"; the casts are scattered; the best singers of the company, notably members of the German contingent, have been drawn to the Metropolitan Opera Company in New York. The disruption of as well founded an organization as the Chicago Company is lamentable. There can be no expectation of rebuilding it to its former prestige with even immediate resumption, and of this there seems little likelihood.

METROPOLITAN OPERA COMPANY

Rehabilitation Measures. — The Metropolitan Opera Company, while it experienced a bad winter, was nevertheless able to resume activities this autumn. The capital and reserve funds had been exhausted to meet the deficit of last season which followed a sharp decline in public interest and in artistic prestige. In the spring various plans were advanced to re-establish the company. For a time there seemed a likelihood of incorporation in Radio City, the enormous project now under construction in New York City, which will combine many branches of music in one great organization. The final arrangement, however, left the Metropolitan Company in its own building. A definite attempt has been made to meet the new conditions of reduced income and declining public interest. The tendency of the past to lapse into a poor and boring repertory, except for a few masterpieces and a few display pieces for favorite singers, has been arrested. Routined performances, an overworked and careless orchestra, outmoded and outworn pieces, German and Italian contingents which badly needed sifting and dismissals, — these have been rectified as much as is possible in the short space of the last six months.

New Singers. — Goeta Ljungberg, Swedish soprano from the Royal

Opera at Stockholm, proved a tremendous success in principal parts in Wagner and Strauss. A beautiful woman, full of dramatic fire and ability, she gave a much needed stimulus to the box office in the early part of 1932. New singers added during the spring for the 1932-1933 season included recruits from the Chicago company, among them Tito Schipa to succeed Gigli, Frida Leider, Maria Olczewska and Richard Bonelli. Others new to the roster were Richard Crooks, American tenor; Rose Bampton, contralto; Gustaaf De Loor, outstanding Dutch tenor, and Ludwig Hofmann from the ranks of the Berlin Opera. Jeritza, Bohnen, Gigli, Thill, Danise, Whitehill, Andresen and Didur are off the roster this season. No changes in conductors or stage managers have been made, however, and there is a question in many minds whether the sweep is thorough enough.

New Operas and Revivals. — New operas announced for the repertory include Strauss's "Elektra," Gruenberg's "Emperor Jones" (text by Eugene O'Neill) and Rossini's "Il Signore Bruchini." Smetana's "Bartered Bride," "Puccini's "Manon Lescaut" and Montemezzi's "L'Amore dei Tre Re" have been put back into the active repertory. Two important revivals came early in the year, Verdi's "Simone Boccanegra," with Lawrence Tibbett in the title role, and Bellini's "La Sonnambula," serving as a vehicle for the grace and loveliness of Lily Pons, the coloratura who last season had become the greatest box office attraction of the company, replacing Jeritza.

OPERATIC ITEMS

Philadelphia. — The Philadelphia Opera Company, a prosperous company with a dependable public and strong private support, which does one or two new works each year, this year contributed a performance of Carlos Chavez's "Horse Power," a modernistic ballet. Stokowski and Reiner are the conductors of the company which in recent years has presented Berg's "Wozzeck" and Strauss's "Elektra."

MUSIC AND THE OPERA

New York City.—The Russian Opera Foundation produced Rimsky Korsakoff's "The Golden Cockerel" at the Mecca Auditorium. The performance was of the opera in its original form, not the ballet form which Diaghilev and Fokine devised. The outcome of the performance made many feel that the altered version of the dancers was an improvement on the original.

Boston was the scene on Jan. 11 of the first production of "Marina," an operetta in three acts by Mrs. Larz Anderson and Mrs. Grace Warner Gulesian, given at the Colonial Theatre with a cast which included Rose Zulalian, contralto; Selma LaRochelle, soprano, Edgar Isherwood, tenor, and Edward Hale, Jr., baritone.

ORCHESTRAS

The Philharmonic Society continues to revolve around the brilliance of Toscanini's conducting, and when he was forced by neuritis to leave the orchestra in the middle of December, 1931, and the gap was filled by such able but modest figures as Golschmann of St. Louis, Gabrilowitsch from Detroit, and Lange of New York, the box office showed the results of the too great leaning on a "star" conductor. Said Henderson in the *New York Sun*: "It is not always safe to hitch your wagon to a star." Bruno Walter, the regular mid-season conductor, came late in January and conducted the orchestra as scheduled through February. Later came Sir Thomas Beecham whose programs released for a first American performance a Lalo Symphony written as early as 1885, apparently unheard in this country until this performance, and, for a first performance anywhere, Theodore Cella's "Through the Pyrenees." In a Respighi Festival which lasted four days, the composer conducted. It began with the first performance anywhere of a new musical mystery play "Mary of Egypt," a triptych for concert. Its three episodes, linked by orchestral interludes, proved not to be too startlingly important. The 1932-1933 season lists Toscanini, Bruno Walter and Issy Dobrowen (who has been con-

ducting in San Francisco) as conductors. Members of the Philharmonic Symphony took part in the out-of-door concerts at the Lewisohn Stadium held from June 28 to August 22, with Van Hoogstraaten and Coates as conductors.

The Manhattan Symphony Orchestra, which during the three years Henry Hadley had been conductor had won financial support as well as musical recognition, has a new conductor, David Mannes, director of the concerts at the Metropolitan Museum in New York. Hadley's resignation in the spring came because he found "the future of the orchestra too uncertain to warrant further expenditures of time and effort."

Women's Symphony.—On March 12 much excitement prevailed, at least in certain circles, over the concert of the Women's Symphony Orchestra in Carnegie Hall, New York City, conducted by the redoubtable Ethel Leganska.

Philadelphia Philharmonic.—Under the direction of the ambitious and venturesome Stokowski the Philadelphia Philharmonic Orchestra achieved a number of outstanding performances. The first American presentation of Schönberg's "Gurrelieder" with the Princeton Glee Club and the Philadelphia choral societies on April 8 was perhaps the feat of the season. Repetitions in Philadelphia immediately following and a performance in New York on April 20 enlisted Mmes. Vreeland and Bampton and M. Althouse as soloists. A program of contemporary American music on April 1 and 2 attracted much attention. It included works by Griffes, Cowell, Powell, Copland, Gruenberg, Bennett, Dubensky, and Piston. Other events of interest were performances of Prokofiev's new Third Symphony and Ravel's new Piano Concerto. Guest conductors announced for 1932-1933 are Dobrowen, Ormandy, Rodzinski and Smallens. During the summer, members of the Philadelphia orchestra played in the series of summer concerts in Fairmount Park where Hans Kindler, Henry Hadley and others conducted.

The Boston Symphony Orchestra, Serge Koussevitzky, conductor, gave the first American performances of Stravinsky's Concerto in D major for violin and orchestra on Jan. 1-2 with Samuel Dushkin as soloist. This violinist has bought the sole right to performance for two years. Other noteworthy first performances included Gershwin's Second Rhapsody, heard Jan. 29-30, Leo Sowerby's "Prairies" on March 11 in its first Eastern hearing, Dukelsky's "Epitaph for Diaghilev" for orchestra and chorus (Cecilia Society), a performance simultaneous with that of the Philadelphia orchestra of Ravel's new Concerto for piano and orchestra; J. M. Sanroma, soloist, E. B. Hill's Concertino for piano and orchestra on April 25 with Sanroma again the soloist, and on Oct. 21-22 Carpenter's "Patterns" with the composer playing the piano solo part. Guest conductors for two pairs of concerts were Gustav Holst, the eminent English composer who conducted a program of his own works, and Chalmers Clifton. Carpenter's "Song of Faith" marked a Washington bicentennial program on Feb. 23, and the Goethe centenary was observed on April 9 by performances of Liszt's "Faust Symphony" with the Harvard Glee Club and Beethoven's "Egmont" Overture. These last two pieces, played by the orchestra on a visit to New York, were the only musical recognition in New York of a world wide centenary. Koussevitzky, conductor of the Boston orchestra, was invited to be guest conductor of the Vienna Philharmonic at a concert in June. On May 4 the forty-seventh season of Pops concerts was inaugurated with Arthur Fiedler conductor of the orchestra which consists of regular members of the Boston Symphony Orchestra. In addition to these concerts which are given nightly at Symphony Hall until July, Boston also had a series of free concerts on the Esplanade of the Charles River, conducted as in previous seasons, by Arthur Fiedler.

National Symphony.—In Washington, D. C. the National Symphony Orchestra thrives under the leadership

of Hans Kindler, and presents a regular series of well attended concerts.

The Chicago Symphony Orchestra, Frederick Stock, conductor, went through another one of its perennial crises when, in the spring, the Chicago Orchestral Association notified the Chicago Federation of Musicians that it would have to suspend because of an enormous deficit of \$82,000. The demands of the Musicians' Union in Chicago had led to terribly high salaries. After the customary series of ultimatums from both sides an adjustment was arrived at by the middle of May whereby the number of concerts was reduced by dropping Young People's and Popular concerts, but keeping the regular series intact, salary rates were reduced from \$85 to \$75, and the number of players was dropped to ninety.

The Cleveland Symphony Orchestra, maintaining its high musical standards under Nikolai Sokoloff, met the prevalent financial difficulties by the acceptance of a ten per cent cut on the part of the conductor, the managerial staff and the players.

St. Louis Symphony.—In St. Louis the Symphony Orchestra under Vladimir Golschmann has presented a regular series of concerts.

Cincinnati, with the brilliant Eugene Goossens at the head of its orchestra, has continued to support its orchestra.

The Minneapolis Symphony Orchestra, led by Eugene Ormandy, has launched a 26 weeks' season for 1932-1933.

Pacific Coast.—On the West Coast are Issy Dobrowen at the helm of the San Francisco Orchestra and Radzinski with the Los Angeles Philharmonic.

FESTIVALS AND ANNIVERSARIES

George Washington University.—Marking the two hundredth anniversary of the birth of Haydn, George Washington University on Oct. 13 graduated 168 students, listened to a Haydn symphony played by the National Symphony Orchestra instead of hearing the usual address, and bestowed on Hans Kindler, conductor of the orchestra, an honorary degree of Doctor of Music.

MUSIC AND THE OPERA

The Bach Festival held annually at Bethlehem, Penn., took place as usual this year, the programs being made up of unfamiliar cantatas and the Mass in B minor. May 13 and 14 were the dates of performance.

The Ann Arbor Festival at Ann Arbor, Mich., in May, brought a first American performance of Gustav Holst's Symphony for chorus and orchestra. The composer appeared as conductor in this work.

Worcester.—The Music Festival in Worcester, Mass., listed as usual for October, announced Lambert's "Rio Grande," Vaughan Williams' "Benedicite," Elgar's "Cerontius," Parker's "Leap of Roushan Beg," Carpenter's "Song of Faith," Randall Thompson's "Rosemary" and "Spring" from Haydn's "Seasons." Albert Stoessel conducted.

A Festival of Contemporary Modern Music was held at Saratoga Springs, N. Y., at Yaddo, home of the late Mr. and Mrs. Spencer Trask, on April 30 and May 1. Yaddo is a sort of second MacDowell Colony where creative artists may live and be relieved of worries incident to outside existence. The programs included chamber music by Citkowitz, Chavez, Fine, Thomson, Sessions, Bowles, Gruenberg, Harris, Blitzstein, Levant, Bennett, Antheil, Berezowsky, Piston, Ives, Rieger, Copland, Brant, and Revueltas.

Children's Music Festival.—In New York City, Guy Maier arranged a Children's Music Festival for the holiday week December 1931-January 1932, during which four concerts were given, and Hindemith's cantata, "Let's Build a City," Debussy's "Box of Playthings," Carpenter's "Krazy Kat," a Mozart program, and a dance program were heard by large audiences of children.

Damrosch Anniversary.—The hundredth anniversary of Leopold Damrosch who did pioneer work in the field of choral, orchestral and operatic music in New York City and who did much to advance the music of Liszt, Berlioz and Wagner—the moderns of that day—was observed on Oct. 22 by his sons Walter and Frank, like

their father prominent in American music.

COMPOSERS

Gustav Holst, English composer in residence at Harvard University from January to June, made many appearances as conductor and had many of his works performed. He conducted in Boston with the Symphony Orchestra there and at the Ann Arbor Festival; the Oratorio Society of New York did his Eighty-sixth and his One Hundred and Forty-eighth Psalms; he conducted a band version of "Hammer-smith" in Washington when the Marine Band gave a concert in memory of Sousa; he also conducted at a concert held in his honor at Sanders Theatre, Harvard University, the second half of the program being devoted to his own works.

Karg-Elert, world-famous organist, came from Leipzig to America for a brief tour during which he played many of his own works before large audiences.

John Alden Carpenter, outstanding American composer, contributed his "Song of Faith" for orchestra, a chorus of men's and children's voices and one speaking voice, as a commemorative piece for the Washington Bicentennial Commission.

Ernst Toch, eminent German modernist came to America for the first performance of his "Motley Suite," by the Boston Symphony Orchestra and to play the piano part in his Concerto for piano and orchestra.

The McCollin prize of the Musical Fund Society for composition for which 60 composers, American and European, submitted concertos for string quartet and orchestra was won by Josap Valles, a Catalanian now in residence in Paris.

PUBLICATIONS

Cos Cob Press.—The publication of Gruenberg's new opera "Emperor Jones," has brought to public notice the only altruistic music press in the country, the Cos Cob Press, maintained by Alma Wertheim of New York. Its purpose is to publish meritorious works of American composers and bring them to the atten-

tion of conductors in an endeavor to have the music performed. Any profits from sales or performances go entirely to the composer. Since commercial publishing houses cannot afford to publish most of the new music because of the heavy expense and the usual non-existence of profits, the Cos Cob Press is serving a vital need in American music by making available new works. It is run exactly as any commercial publishing house would be, except that it is conducted wholly in behalf of the composer.

Reis's American Composers.—In September a Second Edition of Claire Reis's *American Composers: A Record of Works Written between 1912 and 1932* was issued. With the aid of the Juilliard Foundation it has been published by the United States Section of the International Society for Contemporary Music, and is a valuable index of American achievement in music.

Periodicals.—Among serious musical periodicals, the outstanding publications continue to be the *Musical Quarterly*, devoted to scholarly treatise and research, and *Modern Music* in whose pages is much information about current trends in composition.

RADIO CITY

Except for its physical features, Radio City is an unknown element in the future of American music. This great center, financed by John D. Rockefeller, Jr., is a \$250,000,000 development in upper Manhattan, still under construction. It covers several city blocks and includes the great Radio Corporation of America buildings which reach 70 stories. Only the Music Hall and the Moving Picture Theatre have been completed. The former offers programs of conventional music hall type on a lavish

scale which calls for performers of high calibre. Musicians await Radio City's completion with mixed feelings. Its implications are so tremendous as to be almost appalling. Any organization as large as this can hardly fail to have a fundamental influence on American musical development. To its magnificent accommodations will be drawn the most talented musicians of the world. Its radio connections tie it up with the entire earth. The space within the buildings for opera, theatres, concerts large and small, for teaching and for all manner of business connected closely or remotely with music may well make it the musical center of the civilized world. On Radio City's administration will depend its influence on music, whether it be for good or ill. Its outer appearance is that of a great trust, but well directed it should help to bring order and coördination to what has been the most haphazard of the arts.

THEREMIN

On April 1 Leon Theremin, inventor of instruments producing electrical or "ether-wave" music and several assistant Thereminists gave a concert and demonstration at Carnegie Hall. New variations of the instrument were presented, space controlled, finger-board and keyboard theremins. Among the new forms was a rhythmicon, a musical dance stage operated by the dancer, on which the dancer may play different rhythms up to 16 in number at the same time; also the "whirling watcher," a disk inscribed with numbers on one side and geometrical patterns on the other, picked out one by one by focussed light controlled by musical sounds. Even with the new improvements, however, there are still limitations in the extent of tone, color and timbre.

THE THEATRE

By J. BROOKS ATKINSON

DRAMATIC CRITIC, *The New York Times*

THE CRIPPLING DEPRESSION

In the third year of the economic blizzard the theatre in New York, and

throughout the country, has been in an especially vulnerable position. Receiverships and bankruptcies have

crippled the activities of many producing organizations. Foreclosures of mortgages have changed the ownership of many playhouses. All through the year the number of productions steadily fell off, and during the summer the number of plays and musical shows on view was reduced to ten or twelve. As a consequence the suffering among unemployed actors has been particularly keen, and responsible members of the profession have made heroic attempts to assist their less fortunate colleagues.

POPULAR PLAYS

"Of Thee I Sing."—Despite this unprecedented situation the average theatre-goer in New York has found much to entertain him, and the well-liked plays and productions have prospered. All through the year, "Of Thee I Sing," for instance, has been an especially profitable musical show, and doubtless would still have been popular without the Pulitzer Award in the spring. "Of Thee I Sing," by George S. Kaufman, Morrie Ryskind and Ira and George Gershwin, is a witty and slapstick attack upon the stupidity of politics, with satirical tunes that follow the same vein.

"Dinner at Eight."—In collaboration with Edna Ferber, Mr. Kaufman is also represented by an austere satirical play about New York society pretensions, "Dinner At Eight," which has been a hit ever since it was produced in late October. Telling its story by a succession of scenes "Dinner At Eight" pokes into the private affairs of the individual guests invited to a smart dinner. Written, produced and acted with adroit perfection, it represents the height of Broadway skill.

"Another Language."—Among the other popular plays there have been Rose Franken's "Another Language," which was produced in the spring, and Rachel Crother's "When Ladies Meet," which appeared in the autumn. "Another Language" is a first play by a woman previously known as the author of a novel. It is the story of family tyranny visited upon daughters-in-law by the possessive mother of a flock of middle-class

sons, and it is told with simplicity and humor.

"When Ladies Meet."—Miss Crother's "When Ladies Meet" expresses the woman's point of view towards infidelity. When the wife and prospective mistress meet accidentally they think so highly of each other that both of them turn against the husband. As usual Miss Crothers is the mistress of play technique and stage direction, and she makes her points with high good humor.

"The Animal Kingdom."—Philip Barry has been represented by "The Animal Kingdom," with Leslie Howard playing the leading part. This was the story of a young publisher who left a young artist with whom he had been living to marry a girl whom he wanted. After marrying her and settling down into conventional life he discovered that his wife represented the animal kingdom. To save himself from gross sensuality he returned to the artist who shared his better aspirations.

"There's Always Juliet."—Another popular play was John Van Druten's "There's Always Juliet," which contained only four characters. It was the romance of a young English lady who fell impulsively in love with an attractive American, and after some hesitation decided to marry him on sight. In the leading parts Edna Best and Herbert Marshall played with so much pervasive charm that it was difficult to realize that four characters were enough for a completely realized play.

"The Late Christopher Bean."—After two or three years of inactivity in the theatre Sidney Howard has returned with "The Late Christopher Bean," a comedy based on a French play by René Fauchois. Writing with a sort of rowdy humor Mr. Howard has showed how the posthumous discovery of genius in the paintings of Christopher Bean turns a stuffy New England doctor into a sharp bargainer and a charlatan. Pauline Lord has made one of her few appearances in comedy as the family drudge in this play, and her acting gives it remarkable lift in the theatre.

"Distant Drums" and "The Truth About Blayds."—In the spring Miss Lord appeared as a strange prescient pioneer in an evocative play entitled "Distant Drums," by Dan Tothoroh, author of "Wild Birds." Although it had considerable poetic beauty it seemed incomplete in the theatre and it failed. After that Miss Lord appeared in a revival of A. A. Milne's "The Truth About Blayds" in a part that hardly suited her genius.

THE GROUP THEATRE

As the first play of its second season the young people of the Group Theatre offered John Howard Lawson's "Success Story," which was still on view at the end of the year. It is the character study of an aggressive East Side Jew obsessed with a desire for power. Beginning as a clerk in an advertising business he forces his way ruthlessly along, taking advantage of the mistakes of an affable chief, and finally forces out his superiors. Although the play is convulsive in form it is written with a sort of hysterical moral fervor, and with the acting of Luther and Stella Adler in the chief parts it makes a considerable impression in the theatre.

THE THEATRE GUILD

Shaw and Johnston.—During 1933 The Theatre Guild had mixed fortunes. Bernard Shaw's "Too True To Be Good," which had its world première before a Theatre Guild audience in Boston, had only a brief run in New York. It was a series of ineffectual sermons on many current topics. Although parts of it had the tang of Shaw it was too incoherent as a play to leave much impression. The Theatre Guild gave it an excellent performance with Hope Williams, Beatrice Lillie, Hugh Sinclair, Ernest Cossart, Leo G. Carrol and Claude Rains in leading parts. Claude Rains also appeared in Denis Johnston's "The Moon In The Yellow River," which failed but which won considerable critical acclaim. It was a poetically symbolic study of contemporary Ireland, written with great beauty.

"The Good Earth."—To begin the

fall season the Guild offered a dramatization by Owen and Donald Davis of Pearl S. Buck's popular novel, "The Good Earth." Although Nazimova and Claude Rains played the chief parts the novel proved to be unsuited to the stage.

"Biography."—Towards the close of the year the Guild mounted S. N. Behrman's "Biography," with Ina Claire as the chief actress. It is the comedy of a well known artist who decides to write her memoirs for a popular magazine. Since her career had been famously casual, at least one of the men involved is alarmed by the prospect of appearing as one of her lovers. Although the drama is tenuous and nebulous, and lacking somewhat in plot, Mr. Behrman's gift for revealing character and his dexterity in writing give "Biography" a certain distinction.

THE CIVIC REPERTORY THEATRE

After a year's leave of absence Eva Le Gallienne has reopened her Civic Repertory Theatre with a revival of Molnar's "Liliom." When it was originally produced in 1920 Miss Le Gallienne and Joseph Schildkraut played the chief parts. Since Mr. Schildkraut has been added to the Civic Repertory company the revival retains these two original players. Miss Le Gallienne's second production was "Dear Jane," a play about Jane Austen by Eleanor Holmes Hinkley. Her third and most successful production was a dramatized version of "Alice In Wonderland" with Josephine Hutchinson in the name part. Costumed and set exactly after the style of the Tenniel drawings "Alice In Wonderland" is one of Miss Le Gallienne's several triumphs.

KATHERINE CORNELL

After concluding her long run with "The Barretts of Wimpole Street" Katherine Cornell returned to New York in December with a half-pantomimic production of André Obey's "Lucrece." It was a dull and pretentious piece of dramatic stylization, and it did not last long, but it disclosed Miss Cornell as a superb actress in a classically tragic part.

THE THEATRE

SATIRE

There have been two lusty satires after the "Broadway" tradition: "Blessed Event," which recounts the Broadway career of Walter Winchell, and "Clear All Wires," a centrifugal satire of American newspaper correspondence from Moscow, which is said to be based on the career of Floyd Gibbons. Manual Seff and Forrest Wilson wrote "Blessed Event," which had a moderately successful career in New York. Bella and Samuel Spevack wrote "Clear All Wires," which was also moderately successful with Thomas Mitchell in the chief part.

IMPORTED PLAYS

From London came, among many other plays, "Autumn Crocus," written by Dodie Smith who uses the pseudonym of C. L. Anthony. It is a leisurely, sentimental story of an English schoolmistress caught up in a romantic episode in the Tyrol, and its chief attraction is the first appearance in America of Francis Lederer, who has straightway become the matinee idol of New York. With the exception of the revival of "The Truth About Blayds" A. A. Milne's only contribution to the season has been "They Don't Mean Any Harm." In it Mr. Milne sought to expose the mischievousness of clever young people. His writing and his characterizations were so overwrought that his play did not run very long.

CRIME AND MYSTERY

There have been several interesting crime and mystery plays. J. B. Priestly's "Dangerous Corner," which is his first drama, tells by a series of ingenious suspenses the story of a crime that has been buried behind the evasions and duplicities of a group of friends and relatives. Edgar Wallace's "Criminal At Large," posthumously produced, is the mystery of maniacal killings, told and acted so well that it has had a steady popularity for several weeks. After being absent from the stage some time Ernest Truex returned in the spring in an amusing crime play entitled "Whistling In the Dark," by Laurence Gross and Edward Childs Car-

penter. Early in the year Daniel N. Rubin's "Riddle Me This!," with Thomas Mitchell and Frank Craven, aroused general interest by the congenial humors of the acting and the shrewdness of the playwrighting.

POLITICAL MELODRAMA

Late in the spring a political melodrama, with many resemblances to New York politics, appeared at the Provincetown Playhouse and later moved uptown to Broadway where it remained all summer. It was entitled "Merry-Go-Round" and it was the first play by two Yale students, Albert Maltz and George Sklar.

MONOLOGUE

Ruth Draper and Cornelia Otis Skinner both had engagements during the year with their one-woman theatres. To this select company Dorothy Sands was admitted in the spring with a program entitled "Styles In Acting." Miss Sands sought to give a rapid survey of representative styles in acting from the time of Dryden to the present day. She did it with skill and rare good humor, and toured the United States liberally with the same program during the autumn and winter seasons.

REVIVALS

The most notable revivals include Sophocles's "Electra," with Blanche Yurka and Mrs. Patrick Campbell; "Camille" with Lilian Gish, which was on view simultaneously with Eva Le Gallienne's version, and Shakespeare's "Troilus and Cressida" as the annual revival by the Players Club.

ABBAY THEATRE PLAYERS

Early in the autumn the Abbey Theatre Irish Players made another visit to America, and appeared for the first time in New York with the present company. The company included Maureen Delaney, Eileen Crowe, Barry Fitzgerald and F. J. McCormick, and it played a repertory of new and old Irish dramas. Among the few new plays presented it gave the first production in America of O'Casey's "Shadow of a Gunman." None of the previous visits from the

XXVI. THE ARTS

Abbey Theatre had been successful, but this one has aroused a considerable following.

MUSICAL SHOWS

In addition to "Of Thee I Sing" the year has brought several excellent musical shows. "Face The Music," by Moss Hart and Irving Berlin, is in the vein of political satire like "Of Thee I Sing," and it is greatly distinguished by the satirical acting of Mary Boland. Howard Dietz and Arthur Schwartz have continued their series of intimate, modernistic musical shows with "Flying Colors." Clifton Webb and Tamara Geva, who have appeared in the predecessors, appear again in "Flying Colors," and Charles Butterworth, after a motion picture career, has returned with his blank, satiric humor. In "Music in the Air" Jerome Kern and Oscar Hammerstein, II, have succeeded in

blending story, music and acting with remarkable beauty. Millocker's "The Dubarry," in adaptation, is distinguished principally by the singing and acting of Grace Moore, who is on leave from the Metropolitan Opera.

The most successful of the rowdy musical shows has been "Take A Chance," by B. G. De Sylva and Laurence Schwab, with Jack Haley as the principal buffoon and Ethel Merman as the chief singer. In May Florenz Ziegfeld revived "Show Boat" with all except one of the original leading performers, and with Dennis King as the only substitute. "Show Boat" was immediately successful again, and was generally considered to be Mr. Ziegfeld's masterpiece. During the summer, while the show was still popular, Mr. Ziegfeld died after a long, eventful and pioneering career in the producing of musical shows.

MOTION PICTURES

BY MORDAUNT HALL

MOTION PICTURE CRITIC, *The New York Times*

EFFECTS OF THE DEPRESSION

Decline in Patronage.—The economic depression was felt severely by the motion picture industry in 1932. Occasionally theatres in the provinces were forced to close down, and none of the houses did nearly as well as the previous year. Yet more pictures were presented in the Broadway area than ever before, chiefly due to the increased number of foreign films which, while they were shown principally in the small cinemas, made their mark in the general scheme of things. For instance, there was the excellent picture "Maedchen in Uniform," one of the ten best features of the year, if not the finest of all.

Foreign Production Increase.—The total number of pictures offered within the usual radius in New York was 439 against 423 the year before. It is interesting to note that the foreign productions reached the unprecedented figure of 137, with works from

Germany, Russia, Italy, Poland, Great Britain, France and Sweden. However, with the exception of the German picture, "Maedchen in Uniform," Hollywood held its own well, for there were more really worth while pictorial offerings in 1932 than during the previous twelve months. There were 50 to choose on a special list as against 35 in 1931.

Imitation and Quality.—During 1932 there was, unfortunately, the usual failing, that of producers emulating the successful works of others and this resulted in a plethora of gangster pictures and those concerned with the unfortunate unwed mother. But while some of these films were decidedly silly and tedious, it should be stated that this sheep-like tendency on the part of film makers was by no means as strong as it has been in other years, not excepting 1931. The technical quality of talking pictures revealed a steady improvement, but

the best ten pictures, which it is customary to name at this time, cannot be said to be any better than those selected in 1931. Nevertheless, the fact that there were more superior films arouses hope for this medium of entertainment, which after all has to take a slower upward trend than is done with the better works in play or book form.

Financial Factors.—The bankers invaded Hollywood and placed their representatives in charge of several studios, but their efforts were not always successful and in more than one instance they were eventually forced to bow to the regime of the experienced picture producers. One of the several concerns that underwent changes was the Fox company, but in the end the financial experts put back certain individuals who had been originally in charge of departments.

CHARLES LAUGHTON

There was the great success of an English actor named Charles Laughton, who went to Hollywood for seven months, during which time he appeared in six pictures, giving outstanding performances in all them. This is particularly significant as Mr. Laughton had only appeared on the London stage for six years and had been seen in two plays on Broadway. His outstanding work over here was in a play called "Payment Deferred," which was made into a picture in which he portrayed the role he created behind the footlights. Another fine, original and compelling interpretation given by him was as Nero in Cecil B. DeMille's picture of the old play, "The Sign of the Cross." It can be said that Mr. Laughton's sense of humor in attacking the part of Nero greatly enhanced the value of the DeMille film. Among other productions to which he lent his talent was a picture of H. G. Wells's fantastic novel, "The Island of Dr. Moreau," which emerged from Hollywood as "The Island of Lost Souls." Another of his clever impersonations was in "The Old Dark House," which was rather disappointing as a story, but unusually interesting in its character studies.

THE TEN BEST PICTURES

In the opinion of this writer the ten outstanding pictures for 1932 were:

"Maedchen in Uniform," based on Christa Winsloe's play, "Gestern und Heute," which was produced in Germany under the aegis of Leontine Sagan and supervised by Karl Froelich.

"Trouble in Paradise," directed by the brilliant Ernst Lubitsch from a play called "The Honest Finder."

"Der Raub der Mona Lisa," a German language musical film inspired by the facts of the stealing of the Mona Lisa from the Louvre.

"Grand Hotel," a pictorial version of Vicki Baum's popular play, directed by Edmund Goulding.

"Dr. Jekyll and Mr. Hyde," a film transcription of the Robert Louis Stevenson story, directed by Rouben Mamoulian.

"The Mouthpiece," a story inspired by the activities of a brilliant but crafty criminal lawyer, directed by James Flood and Elliott Nugent.

"One Hour With You," another picture made by Ernst Lubitsch from the same story he used for his first American picture—a silent one—"The Marriage Circle."

"A Bill of Divorcement," an adaptation of a play by Clemence Dane, with John Barrymore in its leading rôle. It was directed by George Cukor.

"The Doomed Battalion," an excellent drama of the Alpine fighting during the World War with beautiful mountain scenes; a fine cinematic work directed by Luis Trenker and Cyril Gardner.

"Reserved for Ladies," based on a story by Ernest Vajda, directed in England by the Hungarian, Alexander Konta.

"MAEDCHEN IN UNIFORM"

All these pictures are strong enough to bear a careful analysis as to direction, imaginative treatment, camera work and acting. The outstanding pair are utterly different. They are "Maedchen in Uniform," a stirring drama, and "Trouble in Paradise," a brilliant comedy. In the former there were excellent performances by

all in the cast, but the most noteworthy impersonations were delivered by Hertha Thiele, Dorothea Wieck and Emilia Unda. Even the most captious critics admitted the many virtues of this poignant and poetic film tale and those who had seen the original stage offering proclaimed the motion picture far superior.

"Maedchen in Uniform" was first brought to this country by a Britisher who found that he could not get it past the State Censor owing to what was described as scenes of "unnatural affection." Then months later two Americans who knew nothing of the picture having been banned in New York chanced to see it in Paris and they immediately went by airplane to Berlin, where they purchased the film rights for America. Through their belief in the picture and their persistence in showing it to influential persons it was finally passed by the Board of Censors and was presented on Broadway. It proved to be a tender and appealing story of a motherless schoolgirl's affection for her teacher. So far as the malignant suggestions about the story, it was a case of *honi soit qui mal y pense*. It was produced artistically and imaginatively.

"TROUBLE IN PARADISE"

Prudish persons found fault with Ernst Lubitsch's "Trouble in Paradise" asserting that it made a hero and heroine out of two thieves. To a certain extent they were correct, but as this was all set forth with sharp wit and clever acting it was not a pictorial fable to take seriously, but merely a film to be judged by its sophisticated and brilliant entertainment. Mr. Lubitsch went to great pains to reveal the nature of his characters and while the pictorial feature pointed no moral and possessed little in the way of a story, it was notwithstanding one of the cleverest diversions that has been offered on the screen.

"CAVALCADE"

Just after the New Year the Fox company presented a superb film version of Noel Coward's "Cavalcade"

which in its way was just as remarkable as "Maedchen in Uniform," in fact more so, because it was actually an epic of three decades of life in England. In this picture, a feature which, because it was presented after Jan. 1, was not considered among 1932's offerings and, therefore, was not in the Best Ten, Diana Wynyard, an English actress delivered one of the finest performances that has been witnessed in motion pictures. The play, a panorama of the years from the Boer War to the present day, was said by many to be inferior to the film and the author asserted that the picture was "unbelievably fine." Whatever may be said in comparing the film with the stage offering, there remains one point on which all agree and that is that Miss Wynyard's portrayal was better than the interpretation of her part on the London stage. Another excellent piece of acting in this screen contribution was that of Clive Brook, who, like Miss Wynyard, aged in a most convincing fashion during the many years of the touching story. Like "The Birth of a Nation," "The Covered Wagon" and to a lesser extent, "The Big Parade," of silent film days, this "Cavalcade" is a milestone in the annals of talking motion picture work and the only pity is that it may be long before it is equaled, let alone surpassed. While this is being written columns of praise are being devoted in American newspapers to this admirable screen contribution.

OTHER FOREIGN FILMS

"Der Raub der Mona Lisa."—A portentous foreign film in a lighter vein was the German work, "Der Raub der Mona Lisa," the acting in which was accompanied here and there by music and song. In it the producers shrewdly kept to several of the actual details of the theft of the famous painting and one of the most humorous sequences in the film was depicting the thief going from Paris to Florence with a barrel organ on the back of which was the Mona Lisa, at a time all the police departments of Europe were searching for it. Geza von Bolvary, the director of this ex-

MOTION PICTURES

cellent motion picture, who was also responsible for that memorable achievement of another year "Zwei Herzen im Drei Viertel Takt"—engaged Trude von Molo to play the principal feminine role in the Mona Lisa film. This actress was made up wonderfully to resemble the Mona Lisa, and Herr von Bolvary took advantage of this to heighten the interest in his scenes.

Reserved for Ladies.—Under the direction of Alexander Konta, who years ago made a most amusing film from John Erskine's "The Private Life of Helen of Troy," Britain made a picture bearing the title of "Reserved For Ladies," the leading role in which was portrayed by Leslie Howard. This story had been produced as a silent film, but there was not the slightest doubt that it made even a better entertainment in audible form. It was light, but very clever, and in it Mr. Howard who has given several conspicuously able performances on the screen during the year, delivered an excellent impersonation.

"A Nous La Liberté."—Although "A Nous La Liberté," a film directed in Paris by René Clair, producer of "Sous les Toits de Paris" and "Le Million," was not picked as one of the best ten, it was an unusually good and highly imaginative production, but a little mystifying, owing to the character of some of the scenes and their brevity. More than once, however, certain interludes in "A Nous La Liberté" having served as pattern for Hollywood producers in other films, for M. Clair's direction, like Lubitsch's, is always original and he never caters to the demands of the theatre box office.

OUTSTANDING DOMESTIC FILMS

"Dr. Jekyll and Mr. Hyde."—Among the "best ten" was the pictorial version of Stevenson's "Dr. Jekyll and Mr. Hyde," wherein Fredric March gave a most effective interpretation in the dual personality. It was a production in which the director, Rouben Mamoulian, availed himself of the wizardry of the camera. It also kept to the period of the Stevenson tale, and the changes from

Jekyll to Hyde were accomplished in a striking fashion.

"A Bill of Divorcement."—As an instance of an intelligent pictorial adaptation of a play, there was Clemence Dane's stage work, "A Bill of Divorcement," which was directed by George Cukor, who has had long experience in handling both motion pictures and plays. John Barrymore and Katherine Hepburn were the leading performers, and Billie Burke did well in a third rôle. Mr. Barrymore's part was well suited to his talent, and Miss Hepburn, who in a short time had done well on the stage, delivered such a fine characterization in this picture, that she found herself the morning after it was presented on Broadway, one of the most sought-after young players in Hollywood. In fact her screen success is only second to that of Mr. Laughton.

RADIO CITY

S. L. Rothafel opened two big theatres, the Music Hall and the RKO Roxy, which are part of Radio City. It was the intention to have the Music Hall, which seats more than 6,200 persons, a home for high-class vaudeville, but following the first program, this huge house was turned into a cinema and with the moderate prices it draws tremendous crowds. The RKO Roxy, which seats 3,400, had a more successful opening with a combination film and stage show, but it was the picture which evidently attracted the crowds, that and the fact that the seats were low priced. It is obvious that the extra 10,000 seats in these two theatres will hurt other houses, as it has done, but, as is usually the case in the entertainment field, if the cinemas have a worthy pictorial attraction they do good business, even in times of financial stress, such as the present.

THE FILM INDUSTRY OUTLOOK

Will H. Hays, president of the Motion Picture Producers and Distributors of America, in a statement made soon after the beginning of 1933, asserted that Hollywood producers could hope for better business owing to the possibility of a "shorter

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work week" in many industries. He pointed out that many other businesses besides the motion picture industry would benefit under conditions of "productive leisure." He did not deny the need for economy in the making of pictures, but said that there was more substantial basis for faith in the future of film entertainment than ever before.

DIVISION XXVI

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

GENERAL

- AMERICAN ACADEMY IN ROME, 101 Park Ave., New York City.
- AMERICAN ACADEMY OF ARTS AND LETTERS, 633 West 155th St., New York City.
- AMERICAN CERAMIC SOCIETY, Lord Hall, Ohio State University, Columbus, O.
- AMERICAN FEDERATION OF ARTS, The Barr Bldg., Farragut Sq., Washington, D. C.
- AMERICAN FINE ARTS SOCIETY, 215 W. 57th St., New York City.
- AMERICAN INSTITUTE OF ARCHITECTS, 101 Park Ave., New York City.
- AMERICAN NUMISMATIC SOCIETY, 156th St. and Broadway, New York City.
- AMERICAN SCENIC AND HISTORIC PRESERVATION SOCIETY, 154 Nassau St., New York City.
- AMERICAN WATER COLOR SOCIETY, 215 W. 57th St., New York City.
- ARCHAEOLOGICAL INSTITUTE OF AMERICA, New York University, University Heights, New York City.
- ARCHITECTURAL LEAGUE OF NEW YORK, 115 E. 40th St., New York City.
- ART ALLIANCE OF AMERICA, 65 E. 56th St., New York City.
- ART CENTER, INC., 65 E. 56th St., New York City.
- ARTISTS GUILD, 420 Lexington Ave., New York City.
- FINE ARTS FEDERATION OF NEW YORK, 215 W. 57th St., New York City.
- GRAPHIC ARTS BOARD OF TRADE, 291 Broadway, New York City.
- GUILD OF FREE LANCE ARTISTS, 420 Lexington Ave., New York City.
- HISPANIC SOCIETY OF AMERICA, THE, 156th St., West of Broadway, New York City.
- MUNICIPAL ART SOCIETY OF NEW YORK, 119 E. 19th St., New York City.
- NATIONAL ACADEMY OF DESIGN, 175 W. 109th St., New York City.
- NATIONAL ASSN. OF WOMEN PAINTERS AND SCULPTORS, 17 E. 62nd St., New York City.
- NATIONAL INSTITUTE OF ARTS AND LETTERS, 633 W. 155th St., New York City.
- NATIONAL SCULPTURE SOCIETY, 115 E. 40th St., New York City.
- NEW YORK SOCIETY OF ARCHITECTS, 25 W. 39th St., New York City.
- NEW YORK SOCIETY OF CRAFTSMEN, 65 E. 56th St., New York City.
- SOCIETY OF ARTS AND CRAFTS, 721 Madison Ave., New York City.
- SOCIETY OF BEAUX ARTS ARCHITECTS, 126 E. 75th St., New York City.
- SOCIETY OF ILLUSTRATORS, Art Center Bldg., New York City.
- SOCIETY OF INDEPENDENT ARTISTS, INC., 1947 Broadway, New York City.

DRAMA

- ACTORS FIDELITY LEAGUE, 11 E. 45th St., New York City.
- ACTORS INTERNATIONAL ASSN., 701 Seventh Ave., New York City.
- AMERICAN DRAMATISTS, 2 E. 23rd St., New York City.
- AMERICAN DRAMATISTS AND COMPOSERS SOCIETY, 2 E. 23rd St., New York City.
- DRAMA LEAGUE OF AMERICA, 59 E. Van Buren St., Chicago, Ill.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

- ENGLISH FOLK DANCE SOCIETY, 159 E. 33rd St., New York City.
 EPISCOPAL ACTORS GUILD, 1 E. 29th St., New York City.
 INTERNATIONAL THEATRICAL ASSN., 1540 Broadway, New York City.
 MOTION PICTURE DIRECTORS ASSN., 234 W. 55th St., New York City.
 MOTION PICTURE PRODUCERS AND DISTRIBUTORS OF AMERICA, INC., 469 Fifth Ave., New York City.
 NATIONAL ASSN. OF THE MOTION PICTURE INDUSTRY, Times Bldg., New York City.
 NATIONAL BOARD OF REVIEW OF MOTION PICTURES, 70 Fifth Ave., New York City.
 PHOTOPLAY LEAGUE OF AMERICA, 221 W. 57th St., New York City.
 THEATRE GUILD, INC., 243 W. 52nd St., New York City.
- MUSIC**
- AMERICAN GUILD OF ORGANISTS, 217 Broadway, New York City.
 CANTORS ASSN. OF AMERICA, 40 Second Ave., New York City.
 CHORUS EQUITY ASSN. OF AMERICA, 110 W. 47th St., New York City.
 GRAND OPERA SOCIETY OF NEW YORK, 939 Eighth Ave., New York City.
- JEWISH FEDERATION FOR MUSIC AND DRAMA, INC., 5 Beekman St., New York City.
 LEAGUE OF COMPOSERS, INC., 29 W. 47th St., New York City.
 MACDOWELL ENDOWMENT FUND ASSN., 1 E. 57th St., New York City.
 MUSICAL ALLIANCE OF THE U. S., INC., 501 Fifth Ave., New York City.
 NATIONAL BUREAU FOR THE ADVANCEMENT OF MUSIC, 45 W. 45th St., New York City.
 NATIONAL MUSIC LEAGUE, 113 W. 57th St., New York City.
 NATIONAL PATRIOTIC SONG COMMITTEE, 62 Washington Square S., New York City.
 OPERA AND DRAMA SOCIETY, 1730 Broadway, New York City.
 ORATORIO SOCIETY OF NEW YORK, 113 W. 57th St., New York City.
 PHILHARMONIC SOCIETY OF NEW YORK, 113 W. 57th St., New York City.
 RUSSIAN BALALAIKA ORCHESTRA ASSN., 1560 Broadway, New York City.
 SUNDAY SYMPHONIC SOCIETY, 113 W. 57th St., New York City.
 SYMPHONY SOCIETY OF NEW YORK, 33 W. 42nd St., New York City.

DIVISION XXVII

EDUCATION

ELEMENTARY EDUCATION

BY ROBERT K. SPEER

PROFESSOR, SCHOOL OF EDUCATION, NEW YORK UNIVERSITY

THE ECONOMIC SITUATION AFFECTING TEACHERS

Salaries.—Large urban areas throughout the United States had quite generally adopted regular salary schedules previous to 1929. From the point of view of the professionally alert teacher, one of the most attractive features of these schedules was the provision for automatic annual increases. Up to a year ago communities had generally held to the schedules and the increments provided. Last year it was estimated that but one in ten cities had disavowed the schedules in the interest of budget savings. Reports this year indicate that cities have almost unanimously postponed the action of the established salary schedules where schedules were in effect. Some communities are continuing the salaries of a year ago, the automatic increases being withheld. Many other cities are not only passing the increases but are also cutting salaries below the level of 1931. Teacher organizations lobbying in their own interests have given up their claims to increases and are striving now to reduce the proposed salary reductions. In New York City the real force of the organized teacher groups was to keep the authority to abrogate the salary schedules and the authority to determine the per cent of reduction within the province of the state rather than to have it transferred to the local legislative bodies. Few communities are maintaining salary schedules and salary policies formulated during the last decade.

Supply and Demand of Teachers.

It is generally agreed now that there is an over-supply of teachers. One group puts its emphasis upon the fact that there is not a super-abundance of well-qualified teachers. While their contention may be correct, the fact that there are more teachers, good or bad, certificated has its effect upon salaries paid at initial employment. The elementary school teaching personnel is recruited largely from normal schools and teachers colleges. The over-supply of teachers could in time be reduced through lessened enrolments in the freshman classes in these institutions. Positive action leading to a reduction of the qualified teaching personnel is being taken. Entering classes in state normal schools and state teachers colleges are being reduced in some places as much as fifty per cent of their former sizes. This movement to reduce teacher training enrolments is accepted by most educators as an intelligent method of controlling the supply of teachers who may be properly certified to teach in the various states of the nation.

Certifications.—Movements are maturing this year leading to the raising of standards for the certification of teachers. Many state departments requiring two years of professional training beyond the high school for certification are planning on increasing the requirement to three years. Other state departments, now demanding three years of professional training beyond the high school, may be expected to announce soon that four years will be required. The tendency

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in the more enlightened sections is toward a four-year (corresponding to a bachelor of arts or a bachelor of science degree) requirement for teaching in the elementary grades.

Married Women Teachers.—Newspaper accounts indicate that mass movements are being made to eliminate from the teaching profession women who are married and whose husbands are now employed. In some states these women are protected by permanent tenure laws. In states where they are not so protected, many married women are obliged to withdraw. Most communities are at least giving preference to single women in employing new teachers.

Teacher Turnover.—Some communities are systematically reducing their personnel by failure to forward contracts to many in their service. Other communities are adhering in as far as possible to a policy by which they do not dismiss teachers, but at the same time neither do they employ new teachers for positions vacated by death or resignation. This latter policy leads naturally to an increase in size of classes.

Teacher Migration.—Probably due to the hazards involved, teachers are remaining in their present positions. A few years ago statistics showed that in many communities there was a teacher turnover of as much as twenty-five per cent of the entire staff within a single year. This was particularly true in the areas paying the lower salaries. It seems that this former migratory tendency of teachers is considerably reduced in strength. Teachers are not, in any great numbers, giving up positions voluntarily in the hope of securing better ones.

THE ECONOMIC SITUATION AFFECTING SCHOOL ATTENDANCE

Housing of Elementary School Pupils.—During the period of plenty, economically successful parents were taking their children out of public schools and putting them into private tuition schools. Now the movement is all in the opposite direction. Private school enrolments are being reduced. Many private schools are amalgamat-

ing. Others are being forced out of business. The children formerly enrolled in the private institutions are registering in the public schools. While the birth rate has not changed materially, and consequently the school buildings available might serve normally, this flooding of children from private to public schools has in some communities brought on a housing dilemma. The normal public works policy does not suffice and more children are being squeezed into the same number of rooms or in some cases part-time schools are maintained.

Part-Time Schooling.—There seems to be an increase in the number of pupils in schools on a part-time schedule. This is partly due to the housing problem suggested above. It appears also to be due in part to the anxiety of financial authorities to reduce costs by failing to employ teachers to fill vacancies. In this case the pupils must be taken care of by a reduced staff, and while class size is affected in some communities, other municipalities have been obliged to put pupils on a half-day schedule and to assign more classes to each teacher.

EMERGENCY RELIEF FUNDS AND THE TEACHING STAFFS

During the first few years following 1929, teachers were inclined to allot a portion of their salaries to emergency relief agencies. In some cases the school people not only pooled their emergency allotments but disbursed it themselves. During the school years 1930-1932, New York City teachers contributed \$2,213,000 from their salaries for emergency relief. By the end of the school year 1931-1932, this fund was providing more than 1,000,000 free meals a month for children in the public schools. Over \$250,000 was spent for shoes. About \$500,000 went for food supplies. Over \$100,000 was spent for clothing. This emergency relief was not restricted to the pupils alone. In October, 1931, an average of \$846 a day was expended from teacher contributions for immediate pupil and family relief. By May, 1932, this had increased to an average of \$4,971 a day. Nor was the school relief confined to the reg-

ular school year. In New York City \$350,000 of the teachers' relief funds was set aside to provide relief during the summer of 1932. More than 32,000 children were fed each day at more than 150 centers. Milk and groceries were delivered to the families of public school pupils during the summer months. In cases of extreme need, shoes and clothing relief was given. Of the \$2,213,000 contributed by school employees during the school years 1930-1932, \$1,742,739 was contributed from Oct. 1, 1931 to June 30, 1932, showing the tremendous increase in financial help rendered by the teachers during the last school year. The emergency relief story cited above for New York City is but illustrative. Similar help is being rendered by teachers throughout the nation.

CHANGING FUNCTION OF ELEMENTARY PRINCIPALS AND TEACHERS

Elementary principals and teachers have definitely entered the field of the social welfare workers. Under normal conditions their thinking and their time would be devoted to the clearly educational aspects of their work. Due to the present economic conditions, their thought and attention have been transferred to social welfare work. Teachers, through their pupils, are so close to distress that they naturally have been drawn into the problems of alleviating it. Time and service have been rendered both in and out of school hours. Emergency relief funds have been disbursed in accordance with recommendations of principals and teachers. This obligation to recommend relief has necessitated the investigation of family conditions and needs. The school staffs have not only investigated cases, but they have also been used in the actual process of distribution. In some cases in more severe emergencies, small amounts could be given out directly by the school official cognizant of the facts, with refunds made to the teacher or principal upon application to the school emergency committees. Teachers and principals have in some cases been central sources for ferreting out

cases of the needy but the "too proud to ask." These cases in turn may be referred to the municipal relief agencies. Teachers are not only serving in the investigatory aspects, but also in manning the relief stations in the schools and elsewhere. The teachers in industrial and foreign areas particularly are devoting much of their own time to family case work. It may be assumed that the social perspective and former sense of educational values of these teachers may be changed considerably.

THE ECONOMIC SITUATION AFFECTING THE CURRICULUM

Retrenchment.—During the last fifty years the curriculum of the elementary school has been liberalized and vitalized by the introduction of new subjects or aspects such as dramatics, music, art, domestic science, constructive arts, etc., into the regular school work. Anxiety to cut school expenditures has led uninformed lay groups to make demands for the elimination of what they refer to as the "fads and frills" in education. This has resulted, in some school communities, in retrenchment in the very curricular areas that have been introduced as a result of a more enlightened philosophy of education.

Educational Content and Practice.—The introduction of new and worthwhile subject content into the elementary school curriculum was rapid in the decade previous to 1929. There has been a paucity of change in the elementary school's "intellectual diet" in the last year. The educators' attention has been placed elsewhere. The lay public is not kindly disposed toward the introduction of new and sometimes costly innovations. In this period the attempt has been more to "hold the fort" and not to expect new gains in actual practice.

CONSTRUCTIVE THINKING AND PLANNING OF EDUCATORS

Meeting Living Conditions.—Educational institutions, especially on the elementary level, have been in large measure conserving agencies. They have not been, in any considerable

degree, preparatory except in an occupational sense, and they have not been prophetic. American civilization has been changing so rapidly that educators are becoming more fully aware of the need for educating for a changing life. This is emphatically true if education is to be, as claimed, a preparation for life and living.

Political Aspects.—Educators, in spite of the ideas and desires of their leaders, have been thwarted because of the political aspects. Schools in most instances had to train pupils to an acceptance of a power to participate in the present social order. Training of pupils to be critical of American institutions and governmental forms would hardly be permitted the school,—itself a governmental agency.

Social Reconstruction.—Now, stimulated by the present economic situation, there is more discussion of bringing about a general reconstruction of society through the school. Education for social reconstruction has become the dominant theme in educational circles. National and regional conferences have been emphasizing it during 1932. Probably the most discussed educational lectures of the year were delivered by George S. Counts and later put in a pamphlet titled, "Dare the School Build a New Social Order?" The pamphlet consists of three papers. One was read before the Progressive Education Association in Baltimore, a second before a division of the Department of Superintendence in Washington, and a third before the National Council of Education, also in Washington. The titles of the papers were respectively: "Dare Progressive Education Be Progressive," "Education Through Indoctrination," and "Freedom, Culture, Social Planning, and Leadership." The theme, "Education in a Changing World" is not new to educators, but George S. Counts' papers and the statements of others, too, have given a new impetus to its consideration and to its educational implications.

Educational Content.—The liberal educators have for years been emphasizing "the child tendencies, child capacities, child interests, child freedom, child growth." Now the

emphasis seems to be on the educational content. Liberal educators today are emphasizing the factor of American civilization,—a body of economic, political, and cultural institutions—toward which growth must proceed. Briefly, the questions revolving in the minds of educators for which solutions are sought follow: (1) What seems to be the principal evidence that there is something wrong in the present economic situation? (2) What are the fundamental underlying difficulties? (3) What is the best working program for society at the present time? (4) What is the part of the school in relation to the present situation and the most effective program of reconstruction? The Progressive Education Association at its Regional Conference held in New York, November, 1932, had one section devoted to the problem of the school and social reconstruction. They presented the issues involved as follows: (1) what, if any, developments in our economic and social life now call for a reconsideration of our traditional social and educational policies? (2) In the light of the present social-economic situation, what policy should the school adopt? (3) In view of the actual resources and limitations of the educational movement, what is it reasonable to ask the schools to do?

RESEARCH

Research Publications.—During the year the National Education Association has issued several research bulletins. Among the topics included for study and publication this year are the following: (1) Administrative Practices Affecting Classroom Teachers—The Selection and Appointment of Teachers; (2) Administrative Practices Affecting Classroom Teachers—The Retention, Promotion, and Improvement of Teachers; (3) Crime Prevention Through Education; (4) Estimating State School Efficiency; (5) Facts on School Costs. The National Society for the Study of Education published two year books. Part I dealt with "A Program for Teaching Science." Part II was titled "Changes and Experiments in Liberal Arts Education." The Department of

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Superintendence issued its *Tenth Year-book*. The subject was "Character Education."

Educational Research.—Numerous educational journals give considerable space to reports of research. The Educational Press Association of America publishes a list of these journals annually. The *Journal of Educational Research* published by the American Educational Research Association is generally accepted as the standard organ. The United States Bureau of Education publishes bibliographies of research annually.

PERIODICALS

There are now over 400 weekly or monthly periodicals designed for the consumption of those interested in

professional education published in the United States. Most of these periodicals are devoted in whole or in part to articles pertaining to elementary teachers, principals or supervisors. Approximately 100 of them would be considered national in scope. The remainder are regional journals or local teacher house organs. Articles dealing with the newer points of view and including educational principles, educational objectives and illustrative classroom materials may be found in such educational journals as *Progressive Education*, *Educational Method*, *Bulletin of the Department of Elementary School Principals*, *National Education Association*, *Elementary School Journal*, *Teachers College Record*, *Childhood Education*.

SECONDARY EDUCATION

BY PHILIP W. L. COX

PROFESSOR, NEW YORK UNIVERSITY

RETRENCHMENT VS. EXPANSION

For secondary education the current year has been one of fundamental conflict between community pressures for financial retrenchment which have tended to limit the programs of public high schools and a swarming of adolescents into public high schools demanding an expansion of educational facilities. Local school taxes are based almost entirely on real estate, the value of which has decreased in many places far below the assessed valuation. State aid has depended on taxes on corporation earnings, income, and real estate all of which sources have tended to "dry up" as the depression has continued.

ENROLLMENT

Meanwhile, the influx of unemployed youths into the high school and their persistence in school in spite of failures has been fostered by state compulsory schooling laws and by parental beliefs that continued scholastic education will decrease the hazards of unemployment for their sons and daughters during the years

to come. Based on the data of 1930, when for the country as a whole 53 per cent of all youths of secondary age were enrolled in secondary schools and between 75 per cent and 80 per cent of city secondary population were so enrolled, it is estimated that fully 60 per cent and 90 per cent would be the comparable figures for 1932-33. Not only is pupil persistence in school greater, but approximately 100,000 post-graduates are enrolled in public high schools (*School Life*, Oct., 1932). This estimate is further supported by the current data on juvenile employment which indicates that in urban districts, full time employment of youths of school age has decreased very rapidly. Indeed, in Cincinnati, only 19 out of 100 youths of 16 and 17 years of age, who had left school were able to obtain full-time employment. (*The American Child*, vol. xiv, No. 6, Sept., 1932, pp. 2-4).

CURRICULAR LIMITATIONS

Legal restrictions and the sentiments of business men have combined

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to give precedence to provisions for bonded indebtedness over teachers' salaries, building constructions and repairs, textbooks and supplies, and increasing the numbers of teachers to care for the enlarged student body. Hence, the number of high schools on double sessions and the number of overcrowded classes have increased very greatly. With the need for more varied curricular opportunities never before so keenly appreciated, school boards have in many districts decreased or even discontinued instruction in art, music, practical arts, home economics, and commercial subjects, and have dismissed special officers,—librarians, nurses, supervisors, and guidance officers. In some cases, such restrictions of service have seemed to be dictated by actual lack of funds; in nearly all cases, however, the community sentiment reflected by school boards has revealed a failure to comprehend the important places which non-academic opportunities for education play in the school lives of great numbers of youths who because of low native ability and lack of scholastic interests are unable or unwilling to profit from such abstract subjects as foreign languages, mathematics, book history and book science, and English "classics" and grammar.

PUBLIC DISCUSSION

Perhaps the outstanding development in the area of secondary education has been the increasing frankness and militancy of public discussion, both from platforms and in educational literature. The complaisant attitude characteristic of the previous decade has given way to searching inquiry into the purposes and justification of public secondary education. A franker interest than formerly is being shown in the school's functions to prepare youth for an impending social order, to engage in an open competition with all school agencies that encourage crime, to provide opportuni-

ties for recreation, for artistic expression, and for fearless discussion of economic, international and other social questions. Compulsory military training is being successfully challenged. The right of American youths to believe in socialism, communism, or anarchism or even to be married without endangering their status as high school students is receiving far more wide-spread support than it did a decade ago.

NATIONAL SURVEY

During the autumn of 1932, the reports of the National Survey of Secondary Education in twenty-eight monographs were published by the Federal Office of Education, Department of the Interior, Washington, D. C. This survey which has cost \$225,000 has been in progress since July, 1929, under the direction of Commissioner W. J. Cooper and Professor L. V. Koos. The findings of this survey should be of great value in the initiation of constructive programs affecting both public and private secondary schools. In order to assure the utilization of the findings, regional conferences are being held by the agents of the Federal Office of Education in cooperation with state department of education and schools of education throughout the country. Regional associations of colleges and secondary schools and the Department of Secondary School Principals of the National Education Association are taking active parts in the follow-up work.

PUBLICATIONS

Among the outstanding books in secondary education that have appeared in 1932 are Douglass, Harl: *Organization and Administration of Secondary Schools* (Ginn); Brewer, J. M.: *Education as Guidance* (Macmillan); and Cox, P. W. L. and Long, F. E.: *Principles of Secondary Education* (Heath).

XXVII. EDUCATION
COLLEGIATE EDUCATION

BY ARTHUR J. KLEIN
PROFESSOR, OHIO STATE UNIVERSITY

**THE COLLEGE AND THE
DEPRESSION**

General.—A cursory examination of the titles of printed articles dealing with problems of institutions of higher learning might indicate at first glance that the crash of October, 1929, had but mildly penetrated college and university halls during the year 1931. Seemingly the low pressure area, economically speaking, created by this crash was to increase month by month during 1932 until a velocity of hurricane proportions seemed destined to introduce the year 1933. "Balancing the budget," "the college in the depression," "the depression college," "student aid," "unemployment of graduates," "reduced staffs," "reduced salaries," "reduced income," and "students sacrifice to remain in college" are not only common titles for magazine articles but they are subjects of everyday conversation among students, faculty and laymen who are interested in higher education. This attitude of mind is not sectional; it is national in scope. Furthermore, it is not peculiar to any one type of institution, it has affected public as well as private institutions regardless of the type of control and size of the student body.

Adjustment to Student Needs.—Institutions of higher learning in all sections, many of which have collected student fees heretofore with the insistence of commercial creditors, have granted generous tuition payment concessions in order to help students remain in college. Deferred payments, accepting short and long term student notes, use of the monthly installment payment plan, granting an increased number of scholarships and fellowships, creating student self-help jobs, creating larger student loan funds, and bartering among students are the more common measures used by colleges and universities in adjusting themselves to student economic needs in 1932.

Financial Handicaps.—Decreases in enrollments, unusually slow collection of student fees, together with decreased income from both endowment investments and state appropriations have been alarming and invigorating to the administrator but result in little less than despair for most members of college faculties. Deferred salary payments, reduced salaries, and forced salary contributions by faculties are frequent. Such conditions tend to undermine faculty morale and dwarf professional growth but, on the whole, faculty people everywhere seem to have met the existing situation in a fashion that has had little detrimental effect on institutional efficiency.

Administrative Problems.—Further, the interested educator and layman may rest assured that higher education is being purged of many of its dilutions and vices. Under intense pressure by the law of the "survival of the fittest" feverish attempts to remove dead and unproductive accretions, to reorganize and revitalize the essentials of the curricula with an increased emphasis on problems of social living in a highly mechanized and materialistic age are problems of vital concern to the administrator of 1932. Every detail of the organization and management of the administrative staff and faculty personnel, of the classroom and extra-classroom activities of the students, and of the operation and maintenance of the physical plant have been scrutinized with microscopic precision in an attempt to reduce expenditures and yet maintain the efficient operation of the institutions.

Student Adjustment.—The way in which students have adjusted themselves to the economic depression is one of the most wholesome outcomes of higher education during the year. Administrators report with enthusiasm of the undergraduate devoting more time to academic pursuits, demanding greater library service and facilities,

showing a keener interest in social problems and voluntary cooperation in reducing costs of social, extra-curricular and athletic events. Empty stadia during athletic contests, although the cause for despair among coaches and athletic enthusiasts, indicates that the threatened extinction of the academic life of the college has been at least delayed until more prosperous times. The interest shown by institutions, faculties, civic, fraternal, and church groups in aiding the poor has been strikingly paralleled among student groups.

Aids to Employment.—Evidences that the colleges are alert and responsive to the needs of society are seen in the adoption of courses for unemployed adults and alumni, in studies of the extent of employment and unemployment, and in concerted attempts to find ways whereby the institutions can make greater contributions to the social needs of humanity. Courses adapted to the local needs of unemployed adults and alumni have been reported by a large number of institutions. Courses in mining reported by the Montana School of Mines, the College of Puget Sound and the University of Arizona; training in leadership for local activities such as drama, music, and social games at the University of Wisconsin; and courses in engineering for the unemployed engineer at the Ohio State University are sufficiently illustrative of this type of institutional activity. The three-day conference that was held at New York University during November is worthy of special mention at this point due to its theme, "The Obligations of the Universities to the Social Order."

CURRICULAR REVISION

Curricular revision includes changes in the administration of the curriculum, the content, the number and the organization of courses. The "honors courses" and the "comprehensive examination" have been popular curricular additions for some time but have received new impetus. Obsolete courses have been dropped. Separate courses involving similar subject mat-

ter have been consolidated. Course sequences have been rearranged in order that courses may be offered in alternate years.

The following changes reported by a single institution involve experimental factors which are of general interest to those working in the field of higher education. A new curriculum is reported for the undergraduate student of Yale University in which subject matter is grouped into more closely related fields and year-courses replace the semester courses in the student load. Northwestern University has announced an experimental plan in which six precocious freshmen are to live in a specially created environment favorable to their development. The University of Minnesota has organized a junior college which is to operate on the principle of differentiated instruction. Students enter this college with a clear understanding of their abilities or inabilities, in so far as personnel data is available, and are assigned to a special curriculum which has been designed with their needs in mind.

NEGRO EDUCATION

Two outstanding contributions to the development of Negro education were made during the year. The *Journal of Negro Education*, a quarterly review of problems incident to the education of Negroes, edited by the College of Education, Howard University, Washington, D. C., appeared in January, April, July and October. The purpose of the *Journal* is to stimulate the collection and to facilitate the dissemination of facts about the education of Negroes and to present discussions concerning appraisals of practices and problems of Negro education. This publication has a distinctive field and gives promise of performing a national service through serving as a medium of communication between the educational efforts of the two races whose destinies are so inextricably interwoven. The Johnson C. Smith University, Charlotte, N. C., held in April a symposium on higher education of Negroes. Problems of vital concern to the institu-

tions of higher education for Negroes were discussed by able leaders. These contributions presage a remarkable development of Negro education which will increasingly enrich and ennoble our national life.

COLLEGES IN BANKRUPTCY

An interesting problem for the higher educational "conjurer" is presented through three institutions having been thrown into bankruptcy. Certainly the sanctity of the inviolate right of the college to offer Christian education regardless of the financial sacrifices demanded of the college faculty has been seriously questioned. It is reported that two faculty members who were dropped by the trustees of Atlantic University as an economic measure, successfully applied for a receivership and an injunction prohibiting the board of trustees from disposing of any of the institution's assets. Fifteen members of Hardin College, Mexico, Mo., also successfully applied for a receivership and an injunction prohibiting the board from disposing of the assets of the institution, upon the basis of incomplete payment of salaries. As this article is in the process of completion magazines are carrying the announcement that the University of Miami, Coral Gables, Fla., has also been thrown into bankruptcy.

INSTITUTIONAL COOPERATION

The manifestation of interest by various groups of higher institutions in establishing closer relations and better cooperation with each other is found among public institutions in several states and among groups of institutions related to each other by common origins. Specific factors entering into the development of a unified system of education were discussed in this article for the year 1929. A number of consolidations and cooperative programs of small Negro and denominational institutions have been effected in the southern and central sections of the United States. An agreement between Barber-Scotia College at Concord and John-

son C. Smith University at Charlotte, N. C., whereby juniors and seniors of Barber-Scotia attend the Johnson C. Smith University became effective in September. Allen University of Columbia, S. C., and Kittrell College of Kittrell, N. C., have merged the liberal arts college of the two institutions at Kittrell and the Theological Division at Columbia. South Carolina Agricultural and Mechanical Arts College and Claflin University of Orangeburg, S. C., are cooperating in the elimination of duplication of work and in the payment of salaries of teachers. The consolidation of Tabor College of Iowa with Doane College of Nebraska, of Ozark Wesleyan of Missouri with Baker University, Kansas, and of Mt. Morris College, Illinois, with Manchester College of Indiana are typical.

LEGISLATION

The legislature of Mississippi created during the year, the Board of Trustees of Higher Learning. Sole supervision and complete control of the educational, business and financial activities of the state-supported institutions are vested in this Board. Like the Oregon law of 1929 and the Georgia Law of 1931, the Mississippi law provides for a full-time, non-member, executive secretary. The executive secretary is a fact gathering, fact reporting officer whose findings furnish the basis for intelligent action on the part of the Board in formulating educational and fiscal policies for the development of the state's system of higher education. The Board of Trustees have contracted with George Peabody College to conduct a survey of the institutions and to make recommendations concerning future policies for the development of higher education in Mississippi.

STATE SURVEYS

California.—The Carnegie Foundation for the Advancement of Teaching completed a survey of state higher education in California. Recommendations looking toward the development of a unified system of public education include: (1) the establishment

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of a State Council on Educational Planning and Coordination; (2) the transfer of the control of the state teachers colleges from the State Board of Education to the State Board of Regents of the University of California; and (3) the reorganization of the State Department of Education.

North Carolina.—Recommendations of the survey commission concerning the administrative organization and the assignment of specific functions to each of the three institutions of the University of North Carolina have been accepted by the Board of Trustees and thereby have become a part of the rules and regulations of the board for the government of the consolidated university.

UNIVERSITY OF NEW JERSEY PROPOSED

The Board of Regents in New Jersey recommended to the 1932 session of the Legislature the creation of a University of New Jersey to be composed of junior colleges, colleges of arts and sciences, technical schools, professional schools and possibly normal schools and teachers colleges. The separate units of the university are to be located at strategic points throughout the state. The location of these units would be determined on the basis of educational needs of the people of the state. This proposal is significant in that it represents another type of attempt to develop a unified system of higher education.

EDUCATION FOR THE PROFESSIONS

BY ALONZO F. MYERS

PROFESSOR, NEW YORK UNIVERSITY

In this article it has been possible to present only a brief report of some of the significant developments in a few of the professions in 1932.*

LEGAL EDUCATION

National Associations.—A possible conflict between the American Bar Association and the law schools represented in the Association of American Law Schools has been satisfactorily adjusted. A resolution adopted by the practitioners' association in 1929, favoring compulsory law school courses in professional ethics, has not been added to the list of qualifications that law schools must possess in order to be formally approved by the Council on Legal Education. In lieu of this invasion of academic freedom,

the desirable end sought by the resolution is being attained through a fruitful process of negotiation with leading law schools. The Association of American Law Schools, at its annual meeting held in Chicago, December, 1931, requested its Executive Committee to give sympathetic consideration to those member schools which, by reason of the financial stringency, will have difficulty in meeting the increased requirements adopted the previous year and effective September, 1932. The new National Conference of Bar Examiners has held two successful meetings, and completed the first volume of a valuable monthly periodical, *The Bar Examiner*. The first substantive resolution adopted by this organization (Oct. 10, 1932) recommended to all bodies dealing with the examination of applicants for admission to the bar that they insist upon "a fair knowledge of the history, background, traditions, and functions of the legal profession and its standards of professional conduct."

Bar Admission Requirements.—During 1932, twenty-one states (as compared with twenty-five the year be-

*The author is indebted for significant contributions to the materials presented in the several sections of this article to the following persons: Legal Education, Alfred Z. Reed; Medical Education, Alan M. Chesney, F. A. Moss, H. G. Welskotten, Willard C. Rappleye; Engineering Education, C. F. Scott and F. L. Bishop; Education for the Ministry, William J. Thompson, James E. Cummings; Business Education, Herbert A. Tonne; Professional Education of Teachers, Edward S. Evenden.

fore) made changes in their rules or laws affecting admission to the bar. An encouraging feature of the situation is the increasing activity displayed by the more backward jurisdictions. Alabama has substituted, for its former requirement of 18 months law study, high school education or its equivalent. California has inaugurated a similar requirement, and has lengthened its prescribed period of law study to four years, or actual graduation from a full-time three-year law school. Arizona, which previously had neither requirement, now demands the equivalent of a high school education, to be completed before a three-year period of law study begins. Texas has come up to the high school level, and has greatly curtailed the extent to which graduates of law schools are exempted from its bar examination. Kansas has announced a prospective increase in its preliminary requirement from two college years to three; and Tennessee will lengthen its period of law study from one to two years. The Wisconsin and Massachusetts Supreme Courts have handed down interesting opinions claiming control over admission to the bar, independent of their state legislatures. The total number of jurisdictions that, in addition to a bar examination, require all applicants to have secured a specified amount of general education, and, following this, to study law during a specified number of years, is now 16 out of a total of 49 (48 states and the District of Columbia). Of these, 13 set a standard of general education as high as the two years of college recommended by the American Bar Association. Six additional states require something in the nature of two years of college, but not necessarily, in the case of all applicants, before the beginning of the prescribed period of law study.

Law School Statistics.—In 1931-32 the degree-conferring law schools in the United States numbered 182, of which 84 were full-time, 75 part-time, and 23 of the "mixed" type, maintaining separate full-time and part-time divisions. As compared with the year before, there was an increase

of two in the number of full-time schools, and no change in the figures for the other two groups. The autumn attendance was as follows: Full-time (complete), 14,897, being 70 in excess of the figures (revised) for the preceding year; part-time (5 schools not reporting), 13,476, being 799 less than the year before (4 schools not reporting); "mixed" type (2 schools not reporting), 10,771, being 980 less than the year before (3 schools not reporting); total for all schools, 39,144, being a net loss of 1,709. Of the students attending schools of the "mixed" type, 3,820 were in the full-time, and 6,951 were in the part-time divisions. At the close of the academic year, 68 of the full-time schools (81 per cent) were members of the Association of American Law Schools, and these, with 5 others (making 87 per cent) had been approved by the Council on Legal Education as complying with the standards of the American Bar Association. No exclusively part-time school had qualified under the standards of either Association, but 6 of the "mixed" type were members of the Association of American Law Schools, and these, with 2 others, had been approved by the Council on Legal Education. Schools approved by the Council contained 92 per cent of the exclusively full-time attendance, 36 per cent of the attendance at schools of the "mixed" type, and 45 per cent of the total attendance at all law schools.

MEDICAL EDUCATION

Commission on Medical Education.

—The Commission was organized in 1925 by the Association of American Medical Colleges to make a study of the educational principles involved in medical education and licensure, and to make suggestions to bring them into more satisfactory relationships with the newer conceptions and methods of university education, on the one hand, and with the needs of present-day society, on the other. The Commission was headed by Dr. A. Lawrence Lowell, President of Harvard University, and included in its membership outstanding leaders in the

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fields of medical education and university education. The final report of the Commission, published late in 1932, is of tremendous significance to medical education. It includes the following major aspects of the subject: the public aspects of medicine; medical needs; the supply and distribution of physicians; post-graduate medical education, internship, medical licensure, the medical course, opinions regarding the medical training, pre-medical education, cost of medical education and medical education in Europe.

Supply and Distribution of Physicians.—There is an oversupply of physicians in the United States and it is increasing. The number of graduates in 1932 exceeded those of 1931. On the average, since 1922, the number of graduates has exceeded the losses from the profession through death by 832. The oversupply is further augmented by an increasing number of American students studying medicine abroad. The need no longer exists for as high a ratio of physicians to the population as in the past, because of the denser population and of improved transportation and communication. There is, however, a need for a better distribution of doctors. Physicians, as well as hospitals, laboratories, and public-health agencies, are not at present properly distributed in relation to medical needs.

Scholastic Aptitude Tests for Medical Students.—One of the means employed successfully by the Association of American Medical Colleges to make a wise selection among those who desire to study medicine is the scholastic aptitude test for medical students. In his report for 1932, Dr. F. A. Moss, who has responsibility for the development of these tests, presented a study of the predictive value of the aptitude tests throughout the entire four years of the medical school curriculum. The test in its present form consists of seven parts as follows: (1) comprehension and retention; (2) visual memory; (3) memory for content; (4) pre-medical information; (5) scientific vocabulary; (6) ability to follow directions; (7) ability to understand

printed material. Last year the test was administered to 9,173 students in 537 colleges. The total scores ranged from 11 to 265. The median score was 156. Based upon the distribution of medical school work over the four-year medical course of 1,000 students who took the test four years ago, the report concludes: A. If a student has a score as high as the highest tenth tested, (1) the chances are 100 per cent that he will graduate from the medical school, (2) the chances are 3 to 1 that he will average 85 or over for the entire four years; B. If he is as low as the lowest tested, (1) the chances are 60 out of 100 that he will be unable to graduate because of failure to carry the work successfully, (2) the chances are 9 to 1 that he will have an average below 85 if he does graduate.

Curriculum and Methods.—The present tendency in many of the medical schools is toward placing greater responsibility on the student for his own training in an effort to emphasize learning by the student in contrast to teaching by the faculty. The newer emphasis is upon individualizing instruction and providing opportunities for self-development and independent work. The new methods are illustrated by the discontinuance of the rigid class system and uniform time and course schedules; the use of small teaching sections; personal contacts between students and instructors; provision for a reasonable amount of free time for reading, individual work, and leisure; reduction in amount of lecturing; and opportunities for competent students to do independent work. The content of the curriculum is also undergoing significant modifications. The various courses are being made introductory in character with the emphasis on principles, leaving the training in the technical aspects of laboratory work or special treatment, which requires considerable experience and additional preparation, to be obtained after graduation. However, every student should obtain a thorough, supervised training in those fields and methods of clinical medicine which accumulated experience has emphasized as

being necessary for sound practice. The changes in the motivation, content, methods of medical education are effecting important modifications in the organization of instruction. The medical course is being integrated, rather than treated as a series of isolated subjects. Efforts are being made to correlate the learning in the various fields which have become isolated in the recent era of overspecialization. Greater emphasis is being placed in some of the schools on study of the patient as a whole, in which are considered such factors as emotional tone, conditions of employment, habits of living, and other factors which often determine proper diagnosis, treatment and prevention.

Regulation of Medical Education and Licensure.

—Medical education for several years has been going through a process of upgrading and standardization. It was necessary to establish rigid requirements in order to enforce proper standards. Many of them became crystallized into rules, regulations and laws. The result has been rigidity and uniformity in a field which has been experiencing phenomenal growth and change. The present conditions require a new viewpoint among those responsible for medical education, practice, and licensure, in the direction of flexibility and reasonable freedom, and not in more laws, regulations and standardization. Recognition of this need led recently to the significant action taken by the Federation of State Medical Boards in transferring as far as possible all details of training to the medical schools. Many now believe that the license to practice should be granted directly on the basis of graduation from an approved medical college and completion of a satisfactory internship. This represents the present practice in most countries of the world. The schools would be expected to take the responsibility for graduating and certifying only those students who meet all the qualifications necessary for practice. Accompanying such a plan there would have to be developed a careful program of inspections, visitations, reports, and other devices in order to make sure

that the work done in the medical schools and hospitals meets satisfactory standards. The ultimate functions of the state licensing bodies would be the approval of medical schools, the maintenance of a Register of qualified practitioners, the enforcement of the medical practice acts, disciplinary actions against physicians for unprofessional conduct, and participation in the maintenance of a Register of Specialists.

Internship.—There is a growing emphasis in the medical course proper upon clinical clerking and other methods of insuring that the student receives a sound training in clinical medicine. This requires readjustments in the hospital experience, which should be more closely articulated with the instruction in the medical course if the best results are to be obtained. The opinion is growing that the training in surgical and other advanced procedures on patients should be a responsibility of postgraduate education, and that the present internships devoted exclusively to surgery which do not require a previous hospital experience of a general character should be modified.

Postgraduate Medical Education.

—There are over 40 graduate medical schools and institutional courses approved by the American Medical Association which provide a wide range of opportunities for post-graduate training. More than 3,500 physicians are taking courses each year in these institutions and about 1,000 others are doing postgraduate work abroad. Three hundred and seventy-two hospitals in the country provide residences for 2,144 graduate students, many of whom are preparing themselves for practice in one of the specialties. Several of the universities, such as Minnesota, Toronto, Pennsylvania and Columbia, now provide formal though flexible programs for advanced training in clinical fields which lead to higher degrees.

Enrollments.—The total number of undergraduate medical students in the approved schools for the session 1931-1932 was 22,135, an increase of 153 over last year. This is the largest number of students enrolled since

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1905, when 26,147 students were in attendance at the 160 medical schools then existing. The increase over the previous year, however, is less than one half of the increase noted in the corresponding gain in 1930. Since 1922 the number of medical graduates in the United States has steadily increased. The number of graduates in 1932 was 4,936. This number is estimated to be about 50 per cent greater than the loss by deaths in the medical profession in 1932.

ENGINEERING EDUCATION

Engineers' Council for Professional Development.—Seven national engineering bodies have organized the Engineers' Council for Professional Development with the announced objective of advancing the professional status of the engineer. The participating bodies and their representatives are: American Society of Civil Engineers, J. Vipond Davies, Harrison P. Eddy, C. F. Loweth; American Institute of Mining and Metallurgical Engineers, Donald F. Irvin, D. H. McLaughlin, Benjamin F. Tillson; American Society of Mechanical Engineers, C. F. Hirshfeld, J. H. Lawrence, W. E. Wickenden; American Institute of Electrical Engineers, Charles F. Scott, C. O. Bickelhaupt, L. W. W. Morrow; American Institute of Chemical Engineers, H. C. Parmelee, A. B. Newman, John M. Weiss; Society for the Promotion of Engineering Education, Robert I. Rees, H. P. Hammond, Dugald C. Jackson; National Council of State Boards of Engineering Examiners, D. B. Steinman, T. Keith Legare, P. H. Daggett. This new agency plans to coordinate and promote efforts directed toward higher professional standards. Its immediate objective is the development of a system whereby the progress of the young engineer toward professional standing can be recognized by the man himself, by the profession, and by the public through the development of those qualifications which render the engineer a valuable member of society. It is believed that this will involve increased development along social, economic and general cultural lines as

well as the maintenance of high technical standards of education and practice. The Engineers' Council for Professional Development is embarking on a program of improving means for educational guidance of young men with respect to the engineering profession, the formulation of criteria for colleges of engineering, the determination of a program of personal and professional growth for young engineering graduates and the formulation of methods whereby engineers who have met suitable standards may receive corresponding professional recognition. Four committees have been appointed to carry on this program.

Educational Guidance.—An important trend of engineering education is the concerted effort that is being made more accurately to inform prospective students and their advisers concerning engineering as a career. This movement does not have the aim of stimulating enrollment, but rather of securing as prospective engineers those students who are best qualified to practice the profession. Some indications of the nature and extent of the movement are given by such examples as the preparation of the booklet, *Engineering, a Career, a Culture*, by the educational research committee of Engineering Foundation; by Dean Barker's series of lectures by engineers and educators at Teachers College, Columbia University; and by the two years successful experience with the high school boys' camp at Stevens Institute.

Trends in Curricula.—There is a tendency to devote more attention to the cultural aspects of the education of the engineer, accompanied by a realization of the fact that it is no longer possible, and perhaps not desirable to endeavor to give the student knowledge and practice in every aspect of engineering so as to equip him to meet every possible situation. It is being recognized that for the benefit of society, as well as for the most efficient work of the engineer, it is essential that the engineer should be trained to think, not only of his specific engineering projects, but also of their larger significance in the economic and social order, so that he

may be a leader in solving these social problems which his work is creating. It is significant that the 1932 summer school conducted under the auspices of the Society for the Promotion of Engineering Education stressed economics and English rather than technical subjects.

Graduate Study in Engineering.—During the past few years there has been a rapid increase in enrollments of graduate students in engineering. The enrollment has increased from 368 in 1921 to about 3,000 in 1932. An important aspect of the increase is the program of part-time graduate study in the evening established at such schools as Pittsburgh, Union, Brooklyn Polytechnic, and Pennsylvania. Many of these programs are in close cooperation with affiliated industries.

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Progress.—The enrollment in Theological Seminaries has not been diminished by the depression. Westminster Theological Seminary of the Methodist Protestant Church with its largest enrollment may index the trend in smaller denominations. The collegiate preparation of the students has not faltered. Yale Divinity School has dedicated its magnificent colonial buildings. Colgate-Rochester also has its splendid new home. The standard for Seminary degrees is approaching uniformity in units required for the Bachelor of Divinity degree. The Doctor of Theology degree is regarded as most appropriate for the highest in course; Doctor of Philosophy, it is felt, should be conferred only by those with university affiliations. Humanism probably has shot its most formidable bolt. The supernatural is in the ascendancy. The vogue of Barthianism indicates this. Antagonism is perceived as coming from pseudo-scientists, not from scientists.

Curricula.—The curricula are fluid, due to the desire to cope with changing conditions. The commission on appraisal of missions of which Professor William E. Hocking is chairman has made a report that is bound to be searchingly discussed in all theological

seminaries with variant conclusions. The physical sciences have triumphed gloriously, the social sciences ignominiously, for war is immanent and economic paralysis halts civilization in the midst of plenty. Theological seminaries feel it incumbent to formulate a curriculum with competent instructors to equip leaders to make the essential religious contribution for the triumph of the social sciences.

Current Events.—The most notable event of the year climaxed New York University's Centennial, Nov. 15-17, when 100 leaders in the English-speaking world conferred for three days on the obligations of a university to the social order. The premiership to the spiritual was outstanding in all the papers and discussions. President Robert G. Sproul of the University of California may be quoted as typical: "The student whose university has given him even a glimpse of the spiritual values. . . is blessed beyond his fellows in the quality of his response to the world about him and the intensity of his enjoyment of its stimuli." The American Association of State University Presidents in November appointed a standing committee to cooperate with the North America Conference on higher education and religion in state universities.

Religious Work in Colleges.—Courses are now increasingly given to state university students in religion by regular and affiliated professors. During the past ten years in thirty-three such universities the number of hours thus given has increased from 384 to 693. McCormick and Chicago in the summer of 1932 offered courses in training student pastors and college campus religious workers.

Catholic Seminaries.—Data for the major and preparatory seminaries from the surveys of 1930 and 1928 are included in the table given on the following page. This table shows at a glance the growth of the seminary division of the Catholic school system over a period of two years. In 1930 reports were received from 99 major seminaries and 88 preparatory seminaries as compared with 94 major

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seminaries and 93 preparatory seminaries in 1928. The number of instructors in these seminaries had increased by 12 or .6 per cent. The increase in the total number of students was 1,158 or 6.7 per cent.

**SEMINARY STATISTICS FOR
1930 and 1928**

	1930			1928		
	Number	Instructors	Students	Number	Instructors	Students
Major.....	99	886	7,632	94	798	6,855
Preparatory.....	88	1,021	10,863	93	1,097	10,482
Total.....	187	1,907	18,495	187	1,895	17,337

The term "Major Seminary" is used throughout this section to indicate an institution in which the study of philosophy and theology is pursued and which is of collegiate rank. In 1930 there were 99 major seminaries preparing students for the priesthood. Sixty-two of these institutions were devoted exclusively to the training of candidates of the various religious orders, 25 to the training of secular priests and 12 to the training of students for both fields of religious work. The total number of instructors reported in 1930 was 886, including 639 religious, 228 secular clergy and 19 lay instructors. The total number of students in major seminaries in 1930 was 7,632. Of the number 1,932 students were training for religious orders and 5,700 were secular students. In 1930 the major seminaries reported 1,440 graduates. The number of these ordained as religious was 370 and as secular clergy 542. The report for 1930 covers 88 preparatory seminaries. Fifty of the institutions were devoted to training candidates for religious orders only, 28 to caring for candidates for the secular clergy and 10 to training candidates for both fields of service. In 1930 there were 1,021 teachers employed in preparatory seminaries, 672 being members of religious orders, 279 secular clergy and 70 lay instructors. There were 10,863 students reported in preparatory seminaries in 1930. The number of graduates reported in 1930 was 1,527, of whom 1,080 entered major seminaries.

BUSINESS EDUCATION

The Economic Challenge.—The outstanding characteristic of business education in 1932 was its complete lack of capacity and apparently even desire to meet the profound challenge of the increasing depth of the depression. It was too much to expect that business educators with their limited equipment and opportunities could prevent or seriously mitigate the ravages of economic failure. It was not, however, too much to expect and even demand that the so-called leaders in business education be conscious of the problem. Yet, far from any actual adjustment being made, no serious effort was made on either the collegiate or secondary levels of business education to adapt the work to the new economic life.

Secondary School Problems.—Our secondary schools still pretended to prepare increasing hundreds of thousands of young women and young men for clerical positions when the labor market was already glutted with excellent workers. The private business schools suffered great decreases in enrollment in large measure because of the more intensive and widespread offerings of the public secondary schools which offered work similar to that of the private business school at public expense. The increased holding power of the full-time secondary school also in many places decreased the enrollments in continuation schools. As a result the administrators and teachers in these part-time schools gave increasing attention to adult education as a partial

means of rehabilitating the unemployed. Inability of the community to finance such adult rehabilitation education, poor equipment, and inability of the teachers to adapt themselves to teaching adults, in many places greatly hampered these splendid attempts to bring a more adequate form of business training to those adults who most needed it.

Collegiate Schools.—Many of the collegiate schools suffered some decrease in enrollment though quite a number of schools were able to maintain their former enrollments. The greatest losses took place in those schools which have a heavy part-time and evening enrollment. While individual collegiate instructors saw the need for radical changes in the form of education, the great body of college teachers of business continued to teach as before. The reports and addresses delivered before the Fourteenth Annual Meeting of the American Association of Collegiate Schools of Business at Buffalo, New York, in April, 1932, gave almost no recognition to the collapse of the false permanent-prosperity philosophy of business. The trivia of administration and classroom techniques were the focus of their attention.

International Conference.—The triennial convention of the International Society for Commercial Education was held in London in July, 1932. Business men and teachers from many countries attended, including a strong official and unofficial delegation from the United States. The need for a broader form of business education received especial emphasis. The conferences made it quite clear that the purposes and problems of business education were essentially the same in all countries.

Research.—The brightest spot was the rapidly growing conviction of a small body of business teachers that they must unify their efforts if they are to improve the caliber of business education and secure for it its proper place in the program of American education. Through the revival of the practically defunct Department of Business Education of the National Education Association, strong efforts

were made to integrate the many fine capacities of individual teachers and research workers. Through the establishment of a Research Commission by the National Association of Commercial Teacher Training Institutions, active efforts were made to concentrate research upon the more vital problems. The basic problem still remained that of attaining a more consistent philosophy of action as a means of unifying the efforts of individual leaders of business education, and as a basis for making the academic administrator of secondary education recognize the significant contribution that can and must be made by education for business.

THE PROFESSIONAL EDUCATION OF TEACHERS

National Survey of Teacher Training.—The three-year national survey of teacher training launched July 1, 1930, by the U. S. Office of Education, is now nearing completion. When this survey is completed there should be available comprehensive and authentic information on all phases on this important subject. Some of the important specific studies included in the survey are the following:

1. Bibliography on the education of teachers. The selected and annotated bibliography on the education of teachers is now completed. It consists of 1,273 selected references.

2. The measurement of teaching efficiency. This is a study of the effectiveness of certain types of measures for teaching efficiency.

3. The history of the education of teachers in the United States. It seems probable that there will be a very complete treatment of this important subject with the more important trends in the development of the professional education of teachers traced from the earlier American periods.

4. Teaching personnel studies. Two personnel studies involving large numbers of cases and requiring the use of the Hollenrith machines have been carried on. One study relates to the teachers of the public schools with particular emphasis upon the problems of supply and demand. The

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other personnel study relates to the teaching staffs of higher educational institutions.

5. Student welfare. This is a study of the provisions made by institutions of higher education for the welfare of their students.

6. Evaluation of curricula. This study presents from recent graduates of teacher-training institutions and employing officials an evaluation of a number of principles and practices in the preparation of teachers.

7. Internal administration. This study establishes principles of internal administration for teacher-preparing institutions. Validation is secured through a jury of competent specialists in the field.

8. Social and economic background of students. This study will include a comparison of social and economic backgrounds of students in teachers colleges and normal schools with students in colleges and universities.

9. Staff attitudes on educational and social theories. This is a study of the opinions of faculty members of a selected number of universities, colleges, teachers colleges and normal schools on educational theories and social problems.

10. In-service education of teachers. This will include a study of (1) the certification practices affecting the in-service education of teachers; (2) the in-service training programs of colleges and universities; (3) the in-

service training program of teachers colleges and normal schools.

11. The education of Negro teachers. This study will present an analysis of problems affecting the education of Negro teachers.

Surplus of Teachers.—In teaching, as in all other fields of employment, there is a large surplus of candidates for employment. It is estimated that the number of beginning teachers needed each year in the United States is approximately 75,000. The agencies which prepare teachers are accustomed to provide many more than this number. The problem of restricting the number of prospective teachers in the light of the demand is difficult, particularly in the case of those institutions which are privately supported and controlled. The situation is further complicated by the low requirements for certification for teaching in many of the states. It is being corrected gradually through the operation of a number of factors: (1) a tendency to increase the academic and professional requirements for teaching; (2) a tendency to select more carefully those who are to be admitted to teacher-training institutions; (3) a tendency to reduce salaries of teachers, chiefly in response to general economic conditions, and partly due to the presence of an oversupply of teachers; (4) proposals looking toward the elimination of some of the institutions which prepare teachers.

VOCATIONAL EDUCATION

BY L. H. DENNIS

DEPUTY SUPERINTENDENT, PENNSYLVANIA STATE DEPARTMENT OF INSTRUCTION

VOCATIONAL SCHOOL ENROLLMENT

Growth and Expenditure.—When the vocational education program sponsored by the Federal Government was initiated in 1917 under what is known as the Smith-Hughes Act, only about 25,000 students were enrolled in vocational courses the country over. In 1932, the annual report of the Federal Board for Vocational Education shows over 1,176,000 men

and women, boys and girls were receiving training in vocational schools operated under state plans. The total expenditure of Federal, state and local funds on this program in 1932 amounted to approximately \$33,500,000. While this may seem a large sum of money, it should be remembered that it is less than one per cent of the total amount expended in this country each year for all forms of education.

XXVII. EDUCATION

ENROLLMENT IN VOCATIONAL SCHOOLS OPERATED UNDER STATE PLANS, YEAR ENDED JUNE 30, 1932

Type of School	Total	Agri- culture	Trade and industrial	Home economics
	Total			
All types.....	1,176,162	257,255	579,591	339,316
Evening.....	400,905	89,402	159,059	152,444
Part-time.....	366,547	10,792	316,937	38,818
Trade extension.....	95,044	10,792	45,434	38,818
General continuation.....	271,503	—	271,503	—
All-day.....	397,520	145,871	103,595	148,054
Day-unit.....	11,190	11,190	—	—

Training of Workers.—Of the total enrollment reported by the states for 1932, in round numbers 400,000 or 34 per cent were adult workers enrolled in evening courses for training along lines of their daily employment, and 367,000 or 31 per cent were young workers who had dropped out of the regular full-time day school and had enrolled for part-time instruction in a vocational course. The total number of employed workers, young and old,

receiving instruction was 767,000 or 65 per cent of the total enrollment.

Classification.—Classified according to fields of vocational training, enrollments reported for 1932 included 257,000 farm boys and girls and adult farmers in vocational agriculture courses, 580,000 youth and adults in trade and industrial courses, and 339,000 girls and women in home economics courses.

ENROLLMENT IN VOCATIONAL SCHOOLS OPERATED UNDER STATE PLANS, BY YEARS

Year	Number Enrolled			
	Total	Agri- cultural courses	Trade and industrial courses	Home economics courses
1932.....	1,176,162	257,255	579,591	339,316
1931.....	1,117,556	237,200	602,755	227,601
1930.....	1,064,536	193,325	633,153	238,058
1929.....	1,047,976	171,466	627,397	249,113
1928.....	999,031	147,481	619,548	232,002
1927.....	911,626	129,032	564,188	218,406
1926.....	885,275	111,585	537,738	235,952
1925.....	792,424	94,765	490,791	206,868
1924.....	690,055	89,640	428,473	171,942
1923.....	536,528	71,298	325,889	139,341
1922.....	475,828	60,236	296,884	118,708
1921.....	324,247	43,352	217,500	63,395
1920.....	265,058	31,301	184,819	48,948
1919.....	194,895	19,933	135,548	39,414
1918.....	164,123	15,450	117,934	30,799

APPROPRIATIONS AND APPORTIONMENT OF FUNDS

State and Local Increases.—One of the best indications of the importance and value attached to vocational education by the states and the local communities is the continuous increase of appropriations they have made from year to year throughout the entire period from 1918 to 1932. Under the Smith-Hughes Act the states have been free to expend

all or any portion of the Federal vocational funds allotted to them on condition that they provide an equal amount of state or local money. The facts are, however, that they have exceeded the statutory requirements by providing funds largely in excess of the amount required to secure the full amount of the Federal grants, and to fulfill all of their financial responsibilities under the cooperative

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program. The increase in state and local appropriations has continued even during the past few years during which there has been an urgent demand for every possible economy in public expenditure. The increase in expenditure of such funds in 1932 over 1931, for example, was \$823,106.

EXPENDITURE OF STATE AND LOCAL MONEY PER DOLLAR OF FEDERAL MONEY EXPENDED, BY YEARS

Year ended June 30	Vocational Education					Vocational rehabilitation
	Total	Agriculture	Trade and industry	Home economics	Teacher-training	
1932.....	\$2.97	\$1.77	\$5.06	\$3.52	\$1.41	\$1.20
1931.....	3.03	1.88	4.74	4.42	1.45	1.19
1930.....	3.04	1.76	4.69	5.47	1.35	1.30
1929.....	2.99	1.90	4.17	7.11	1.33	1.24
1928.....	2.77	1.67	3.90	6.56	1.29	1.36
1927.....	2.65	1.67	3.67	5.88	1.33	1.23
1926.....	2.54	1.70	3.43	5.28	1.25	1.20
1925.....	2.73	1.72	3.85	6.36	1.30	1.28
1924.....	2.90	1.77	4.38	7.27	1.26	1.25
1923.....	2.98	1.78	4.58	8.61	1.21	1.26
1922.....	2.85	1.83	4.48	7.62	1.22	1.36
1921.....	2.76	1.85	4.26	8.47	1.19	—
1920.....	2.45	1.74	3.85	5.77	1.25	—
1919.....	2.17	1.67	3.08	3.78	1.31	—
1918.....	2.65	1.71	4.00	4.79	1.21	—

VOCATIONAL PROGRAM

Characterization.—The program of vocational education in this country is described in the sixteenth annual report of the Federal Board for Vocational Education as "an aggregate of numerous municipal, state, and territorial programs of local origin, adapted in each case to local needs and conducted by local administrators." While these state and local programs are characterized by diversity of types of schools, of vocational fields covered, of groups served, of administrative practices and of instructional methods, certain features which they do present in common, are of fundamental importance.

Control and Adaptation.—In the first place each local program represents one form of educational service established and maintained under public control. This public control, provided by Congress in the Smith-Hughes Act, insures adaptation of the program to local needs and adequately safeguards each program against any possible exploitation by private interests.

Objective.—Again, instruction and training provided in each local program must have a defined vocational objective. In other words each course

must have as its controlling purpose either to fit for entrance into useful employment or in the case of working adults, to provide training and instruction supplementary to their daily employment. The attention of Congress, it appears, was to render our public schools throughout the country, institutions of educational service to the whole population of all ages, rather than to a selected few of the youth who are preparing for academic careers.

Benefits.—Finally, the benefits of local vocational education programs are provided free of cost to the individual receiving them. This would appear to be the only equitable policy for any community which has already assumed responsibility for providing free of cost to its citizens not only general education of secondary and academic grade but also vocational education of collegiate and postgraduate grade for professional careers. In the last analysis also vocational education pays for itself many times over in the increase of labor efficiency and earning power. So that in providing the first cost of such training any community is in effect only discounting the future increase in earning power of its citizens.

SERVICE AND RESEARCH ACTIVITIES

Range of Current Projects.—A review of the records of current projects carried on by the staff of the Federal Board for Vocational Education reveals a wide range of activities including service rendered in the field and research undertaken to assist the states and local communities in developing their vocational programs. All of this work is being done in cooperation with the states or other Government offices, or in response to requests made by the states, by industries or by associations interested in the development of vocational programs. To illustrate the character of the Board's activities, undertakings during the past year are cited.

Employment Study.—(1) A study of changing conditions of employment dealing with those problems in vocational education which develop out of the displacement of labor in consequence of current changes in industrial conditions, processes, mechanization and organization. Special consideration will be given in this study to the practical utilization of vocational training agencies in maintaining occupational adjustment for labor being displaced by such changes.

Agricultural Research.—(2) Making available to teachers of vocational agriculture the results of current technical research. Results of agricultural research, primarily by Government agencies, are reviewed when released and brought to the attention of vocational teachers and those in charge of state programs, to the end that vocational agriculture courses may be kept continuously in line with changed or improved practices growing out of technical research. This work is being done in cooperation with the Department of Agriculture. Checking of occupations of graduates of vocational agriculture courses, during the past year was completed. This survey has been made every five years, beginning with 1922. This periodical survey has resulted in the development of state systems of follow-up of graduates of agricultural training courses.

Steel.—(3) In cooperation with the American Institute of Steel Construction (an organization composed of structural steel manufacturers) and the state boards for vocational education of New Jersey, New York, Pennsylvania and Ohio, an analysis has been made of drafting room practice for the purpose of organizing courses of instruction for training and upgrading workers in this field.

Industrial and Commercial Training.—(4) Cooperation with the Vocational Survey Commission of the New York City Board of Education, in response to a request made by the New York State Board for Vocational Education, in conferences with representatives of employers and workers for the purpose of determining actual training for certain industries and securing practical recommendations for the development of an adequate program of industrial training. Similar cooperation is being extended by the Federal Board, through its commercial education service, in studying the need for vocational courses for commercial workers in New York City. A study to determine the methods of assisting industry to set up training programs for employed workers, particularly in communities where no form of vocational education is now being offered. This investigation has been undertaken at the suggestion of the State Boards for Vocational Education of Ohio, Pennsylvania, Massachusetts and Maine. Training departments recently established by state departments of education, 1 in Maine, 1 in Massachusetts, 2 in Pennsylvania and 18 in Ohio, are being included in this study.

Vocational Training for Firemen.—

(5) This study was undertaken at the request of the International Association of Fire Chiefs. A *Federal Board Bulletin* containing an analysis of the fireman's job was published in October, 1931, and firemen training is now being promoted through field service rendered by agents of the Federal Board at the request of a number of states.

Science and Art Related to Home Making.—(6) Work under these two projects which developed as a result

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of two of the *Board's Bulletins*, "The Teaching of Science Related to the Home," and "The Teaching of Art Related to the Home," is designed to assist teachers in correlating the principles of science and art to phases of home making and in utilizing these principles in solving home problems.

Store Workers.—(7) Organization of an experimental vocational program for employed store workers and managers. Through its commercial education service the Federal Board has been assisting the Wisconsin State Board for Vocational Education in conducting an experimental and exploratory program for employed store workers in Racine, by participating in conferences, developing contacts with interested trade associations, and outlining the general nature of the program.

Rehabilitation.—(8) Assistance to the states in the establishment of rehabilitation programs. This includes assistance rendered by agents of the Federal Board's rehabilitation service to the states in the establishment of state and local rehabilitation services by setting up the proper administrative machinery, developing forms for carrying on the case service, training rehabilitation staffs, and promoting the adopted program. Particular attention is directed in this work toward the utilization of all agencies such as workmen's compensation agencies, agencies for handicapped children, training agencies, social welfare agencies, the public school system, employers, and labor, to the end that cost of rehabilitation may be distributed and no duplication of effort between such agencies and rehabilitation agencies may result.

TRADE AND INDUSTRIAL EDUCATION

Flexibility.—One feature of vocational education which the present economic situation has served to emphasize is its flexibility, and for obvious reasons this feature has been particularly accentuated in the trade and industrial field. With the constant changes in industrial life come many changes in occupations. Some occupations which a decade ago required

many trained workers now need very few, while others have greatly increased in importance. In some industries, as in transportation, there has been a great increase in the number of workers, but the jobs within the industry have changed materially. Certain vocations unknown a few years ago are now demanding a constantly increasing number of new workers. Be it said to the credit of the program of vocational education, however, that it has kept pace with such changes and has sought to meet the needs of workers for training in new occupations or in new phases of old occupations. There are examples to support this statement.

Placer Mining.—There is, for instance, the training organized in the past year for unemployed persons who desire to engage in placer mining in Colorado. Although such courses were entirely new to vocational education authorities of the State, they were organized quickly in a number of Colorado cities and teachers were obtained to give the necessary instruction. Short units of instruction were provided so that men could learn to handle a pan, rocker, and sluice box, and to detect and recover gold and other minerals. Several thousand men who were trained in these classes worked in the mountains during the summer. While no records are available as to their earnings, many of them reported that they had made at least the equivalent of good daily wages.

City Fire Departments.—Another example of the flexibility of the vocational education program is the program of vocational training for members of city fire departments. As a result of a study of firemen's jobs, made by the Federal Board for Vocational Education at the request of the International Association of Fire Chiefs, 75 cities in 16 states are now carrying on organized firemen training courses in which 2,725 men are enrolled. Besides being trained in manipulation of equipment and similar work, these firemen are getting training in the chemistry of fire fighting, in fire ventilating principles, hydraulics, salvage, fire prevention, and

other technical phases of the fireman's job, unthought of in the old days of fire fighting.

Enrollment.—The enrollment in vocational trade and industrial schools last year, as shown by the Federal Board's annual report, was over 560,000. This enrollment, which is slightly under that of 1931, reflects the status of the present unemployment situation. The drop in enrollment occurred in the evening and part-time schools, which under normal conditions are most heavily attended by those who already have jobs and are seeking to improve their efficiency on the job. Enrollment in day classes, however, which are trade-preparatory in character, increased materially during the year.

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Teachers and Schools.—The "back-to-the-farm" movement which has taken place during the past year and the need of intensified farm practices on the part of those already on farms, has imposed new and serious responsibilities upon the 8,000 teachers of the 4,500 vocational agriculture schools in the various states.

Production and Marketing.—Recognizing that under the present economic situation the farmer can best help himself by increasing his efficiency, cutting his costs, adjusting his business to a bare maintenance level, cooperating with his fellows in marketing and other enterprises, and by raising more products for home consumption, vocational agriculture teachers have focussed their classroom and practical instruction upon intensive methods of production and marketing. That their efforts have borne fruit is attested by reports from a number of states that farmers in communities maintaining vocational agriculture schools have been less affected by low prices, and have had less need for Red Cross aid than farmers in communities in which no vocational agriculture schools exist.

"Live-at-Home" Programs.—Special attention has been directed, particularly in the Southern States, to "live-at-home" programs whereby

farmers have been able to grow at home the food and feed needed for their families and their livestock. This live-at-home movement, reports from the states show, has automatically reduced the acreage of cotton, tobacco, and other cash crops, of which there is at present an overproduction relative to the effective market demand for consumption. This movement has been especially successful among Negro farmers of the South.

Evening schools for adult farmers continue to be popular, the report of the Federal Board shows, and increased from 2,545 with an enrollment of 85,688 in 1931, to 2,975 with an enrollment of 87,138 in 1932.

Part-time Schools.—Boys 14 to 20 years of age not regularly enrolled in school, many of whom under normal conditions would seek jobs in the city, have been gathered into part-time vocational agriculture schools and are finding employment on their home farms or are farming independently. Almost 11,000 were enrolled in part-time schools last year.

Total Enrollment.—The enrollment in all types of vocational agriculture schools in 1932 was 252,199 as compared with 237,200 in 1931.

Supervised Projects.—Total earnings from supervised farm practice projects carried on by students of vocational agriculture schools in the United States amounted last year to approximately \$9,500,000. These practice projects, which are carried on by each boy or adult who enrolls for a course in vocational agriculture, are conducted usually on the home farm in some specific farm enterprise. Projects may include poultry, hog, sheep, or cattle raising or the production of an orchard, vegetable, or staple farm crop. The student is required to outline his project in advance, to carry on himself, or to supervise the work done on it, market the product raised and keep a record of his expenditures for fertilizer, feed, labor cost, and any other expense items, and to figure up the profit or loss resulting from his project. In other words, he must run the entire gamut of experience in connection

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with the practical carrying out of the project. The annual report of the Federal Board for Vocational Education shows that whereas vocational agriculture students formerly carried only one farm project, they are now carrying two or more. Although the labor income from such projects in 1932 was smaller than in 1931, the scope of activities was increased and a larger percentage of students completed their work and submitted their records. All farm projects conducted by vocational students are supervised by the teacher of agriculture, who uses them to drive home to his pupils practical points concerning the operations involved in farming.

HOME ECONOMICS EDUCATION

Enrollment.—Conservation of clothing, food, home furnishings, and money and more economical utilization of all available resources has been the keynote of the instruction in vocational home economics schools throughout the country during the past year. The popularity of the home economics instruction carried on in vocational classes under the Federal Vocational Education Act is evidenced by the fact that the enrollment in such classes has increased consistently ever since the program started back in 1918. The enrollment in such classes in 1932, totaled over 339,000, an increase of approximately 62,000 over 1931. Calling attention to the work accomplished in classes for adult women, the annual report of the Federal Board for Vocational Education shows that the enrollment in such classes, 141,444, exceeded that of 1931 by over 23,000.

The Need for Training.—The day has gone by when it was necessary to defend education in home-making pursuits. When one realizes that the housewife has a lot to do with formulating and adhering to the family budget, that she is responsible for the purchases of food, clothing, and house furnishings, that she is responsible for the family diet, that it is she who must assume principal responsibility for all of the factors entering into the health and the recreational activities of the family, the need for giv-

ing her training for her job is obvious. Special stress is laid on the fact that the "live-at-home" programs developed in the vocational home-making courses in the high schools of the country last year, under which the food needed by the family is produced on the home farm, have aided materially in relieving the economic pressure in many homes and communities.

COMMERCIAL EDUCATION

Retail Selling and Salesmanship.—

During the past year research in the teaching of retail selling and salesmanship in high schools in all parts of the country has been continued but could not be completed because the necessary data as to the number and age distribution of those employed in selling operations were not available. The forthcoming publication of the Census Reports on Occupations in 1930 will provide these data. With this information and the data collected by the Federal Board on enrollment in selling courses in the high schools on hand, it will be possible to complete the bulletin summarizing the results of the retail selling study.

Vocational Survey Commission.—

Perhaps the most significant service rendered by the Board during the year in commercial education was that given the Vocational Survey Commission appointed by the Board of Education of New York City to study how the New York City schools could best prepare boys and girls for all of the trade and most of the commercial occupations. The Federal Board for Vocational Education was asked to act, through its commercial educational service, as the technical adviser on commercial education for the commission. The Vocational Survey Commission, following the Federal Board's recommendations, is making the most thorough study of the needs for vocational education for commercial workers ever made in this country.

Food Trades School.—Acting on the advice of the Commission the Board of Education of New York City has already authorized the establishment of a food trades high school. It is expected that during

the next year or so the commission will survey the entire food distributing industry in New York City and outline the kinds of training needed by youth employed in the various selling, store service, and office occupations in the food trade field.

Courses for Employed.—Another significant service rendered during the year was the foundation of a plan whereby the Wisconsin State Director for Vocational Education could undertake some exploratory courses for employed sales people and retail store managers. Under an experienced conference leader courses are being developed in the Racine Vocational School for employed sales people and retail store managers. A similar service has also been rendered in Wilmington, Del., in connection with conferences for employed retailers to be started there.

Meat Dealers.—Organized classes for retail meat dealers set up under recommendations made by the Board, in New York, Chicago, and Milwaukee have received the hearty approval of the trade.

VOCATIONAL REHABILITATION

The Individual Problem.—Experience gained in rehabilitating thousands of persons disabled through accident or disease, has demonstrated the practicality of such a program. The one fact that stands out most prominently as a result of this experience, however, is that vocational rehabilitation must be effected through individual service, since each handicapped person presents a special problem. His adjustment to remunerative employment is dependent upon specific treatment organized to suit his particular needs.

Cost Considerations.—The average cost of rehabilitating an individual is under \$300. But when it is realized that this small and nonrecurrent investment fits a disabled person to be self supporting during the remainder of his natural life, whereas the cost to society of maintaining such a person is recurrent, ranging from \$300 to \$500 a year for the entire period of life expectancy, the economic signifi-

cance of the vocational rehabilitation program becomes apparent.

Scope of Service.—During the past year the staff of the rehabilitation service of the Federal Board for Vocational Education has rendered assistance to state rehabilitation agencies in the training of new workers, participation in state staff conferences, aiding in the solution of case and administrative problems, in the promotion of state research activities, in the evaluation of rehabilitation facilities, in the formulation of working relations with other agencies, and in the general promotion of state programs. Notwithstanding the economic conditions of the past year the number of rehabilitations was 5,550, an increase of 9 per cent over 1931. A better conception of the scope of the rehabilitation program is possible when it is recalled as already mentioned that rehabilitation must be accomplished on a case basis and that 17,662 services were rendered the 33,000 persons who were rehabilitated and on the live roll during the year. These services include among others vocational guidance, training for a job, physical reconstruction, providing artificial appliances, placement in employment, and providing maintenance during the training period. The criterion of rehabilitation, it must be remembered, is placement in a suitable job. A person is not counted as completely rehabilitated until after a period of follow-up on the job to determine his ability to perform the job satisfactorily. It is significant that the number of rehabilitations has increased each year during the period 1930-1932, during which time possibilities of finding employment for even physically normal persons have been greatly reduced.

Study Activities.—Included in the investigational activities of the Federal Board for Vocational Education in the field of rehabilitation completed during the year are: (1) A study of the scope of local participation in state programs of vocational rehabilitation the results of which were published in mimeograph form under the title, Vocational Rehabilitation

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tion—Local Participation in State Programs; (2) studies of relationships between special education and vocational rehabilitation, amendments to state compensation laws, and the status of the rehabilitation supervisor, all of which were mimeographed and distributed; and (3) a study of the developments in the organization and administration of state rehabilitation programs, published as a bulletin entitled, *Organization and Administration of a State Program of Vocational Rehabilitation*. Finally, there was prepared and published a pre-motional illustrated pamphlet, *Reclaimed*, setting forth salient points regarding the national program of

restoration of physically handicapped men and women to useful employment.

Summary of Program.—The annual report of the Federal Board for Vocational Education summarizes the vocational rehabilitation program as follows: "The case cost of this service is surprisingly low, and the administration cost is consistent with principles of sound economy. The results of the operation of the program can be convincingly analyzed in terms of returns on the investment of Federal and state funds. However, statistical and cost analyses can never be made to show the returns to the nation in terms of economic, individual, and social competence."

ADULT EDUCATION

By MARY L. ELY

AMERICAN ASSOCIATION FOR ADULT EDUCATION

ORGANIZATION AND AIMS

Adult Education as an inclusive term, denoting a wide variety of activities with the common aim of enabling men and women to enlarge their knowledge, cultivate their judgment and their appreciation of beauty, or increase their skill, first came into general use in the United States about 1924 or 1925. At that time several fairly widespread and well-developed educational projects enrolled themselves under the new banner. Among these may be named special educational work for immigrants and native-born adults who were illiterate; workers' education, including evening classes, summer schools, and resident schools for industrial workers; public forums and chautauquas; and a great number of individual and local enterprises. Of the last, The People's Institute of New York, Ford Hall Forum in Boston, and the Civic Federation of Dallas, Texas, are typical examples.

In 1925, after a study of these and similar enterprises in the United States, made under the auspices of the Carnegie Corporation of New York, an American Association for Adult Education was formed. The

purpose of the Association was to provide a meeting place for individuals, groups, and ideas in adult education; to serve as a clearing house for information in regard to adult education activities; and to stimulate and carry on studies and experiments in the field. To this program the Association has held and still holds; it has never become either a propagandizing or an operating organization.

Forces that had been at work to make the formation of the Association possible were stimulated and strengthened by its activities and presently united their efforts in what has come to be spoken of as the adult education movement. Older well-established educational institutions, such as the public schools, public libraries, and museums, fraternal and religious organizations, departments of the Federal Government and of the states, either initiated or extended their programs offering educational opportunities to older students. New enterprises, too many and too varied to be treated in detail, sprang up apace. Particularly significant among these were the type of adult education known as alumni education and the

increasingly varied and valuable programs of education offered to the public over the radio. The former, which provides programs of continuing education for college and university graduates, indicated the belated recognition by adult education teachers and administrators of the full meaning of the watchword of their own movement—"universal and lifelong education." They began to see themselves and other so-called educated persons in the light of learners as well as of teachers. This was important as marking the point at which the work lost something of its patronizing spirit and became more genuinely educational for all concerned.

The significance of the drafting of radio into service as a medium for adult education is obvious. In many localities study clubs and discussion groups have been formed to follow up educational broadcasts with discussions of the material presented and with the reading of recommended books and magazine articles.

MEETING THE ECONOMIC SITUATION

Programs for Special Needs.—During the last year adult education, in common with all other social and educational movements, has thrown its energies mainly into efforts to meet the emergency created by the economic depression and widespread unemployment. Classes for adults have been held in the public schools throughout the country wherever funds were available or could be made available for that purpose. Not only have the programs of continuation schools, evening high schools, evening trade and elementary schools been shaped to meet the special needs of unemployed men and women, but day schools have made provisions for them wherever possible. Everywhere the demand for adult education classes, study groups, lectures, forums, discussions, etc., has far exceeded the possibility of supply at this time when both public and private expenditures for educational purposes have been cut down.

Courses for Unemployed.—Colleges and universities are following the lead of the public schools in offering spe-

cial courses of instruction to unemployed men and women. Lafayette College at Easton, Pennsylvania, and Lawrence College at Appleton, Wisconsin, have been among the pioneers in these developments. Many cities report that unemployed teachers and those who are working on part-time schedules are giving their services as teachers of unemployed adults or of groups of recent high school graduates who under favorable circumstances would have entered college this year but, because of the depression, have been unable to do so. Interest is being shown in the possibility and practicability of establishing in this country something similar to the work-camps of Germany in which thousands of young men between the ages of eighteen and twenty-two who have no hope of entering gainful occupations at the present time are given homes and opportunities to occupy their enforced leisure with constructive activities promoting their physical, mental, and spiritual development. Virtually every public library in the United States reports that during this last year a phenomenal increase in the use of its facilities has taken place; the same story is told by museums and other institutions where instruction of any sort is given free, or at small cost, to the public.

Effect on Adult Education Program.—The results of these developments in the adult education field are likely to be both far-reaching and lasting. By the nature of the case, much of the instruction given to unemployed persons is vocational in character, being designed to teach them a new trade or a supplementary trade, or to enable them to keep up their skill in a trade already learned and practiced. It is interesting to note in this connection that less than ten years ago many leaders in the adult education movement either refused outright to recognize vocational education as one of the branches of adult education or granted it a place in the movement most grudgingly. However, vocational education by no means tells the whole story of the work for the unemployed today. The demand for studies of a purely cultural nature is

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both strong and persistent. In particular, interest in all branches of creative art is growing. Enforced leisure has led many persons to discover new interests and unsuspected capabilities. It seems reasonably certain that the increase in the amount of leisure time, which is confidently predicted for all classes of the population, and the need for activities to fill that time will help to shape the adult education programs of the future no less than will the demonstrated need for greater vocational versatility. And both of these needs will undoubtedly greatly strengthen the position of adult education, setting the seal upon its inclusion as an indispensable feature of our educational system.

STUDIES IN OCCUPATIONAL EDUCATION

The greatly augmented interest in occupational education has led the American Association for Adult Education to undertake, during the last fifteen months, a number of studies of existing experiments in this field. The first of these studies dealt with the work of the Denver Opportunity School, which has been maintained in Denver, Col., since 1916 by tax funds under the public school authority. A report of this study, made by Fletcher Harper Swift, professor of education in the University of California, and John W. Studebaker, Superintendent of Schools of Des Moines, Iowa, has been published under the title "What Is This Opportunity School," and distributed by the Association.

The results of a special experiment, carried on at the opportunity schools for whites and Negroes maintained by the State Board of Education of South Carolina, have been published by the Association in a bulletin entitled "The Opportunity Schools of South Carolina." William S. Gray of the University of Chicago, J. W. Tilton of Yale University, and Miss Wil Lou Gray of the South Carolina Department of Education cooperated in making the experiment and in preparing the report.

In the fall of 1931 Nathaniel Pepper completed a study of adult education

in industry made for the Association. Mr. Pepper set forth the findings of his year of investigation in a book entitled *Educational Experiments in Industry* (Macmillan, 1932) in which are briefly described the educational opportunities offered by a number of industrial concerns in an effort to train their employees for their jobs on their jobs.

The report of a study of adult education facilities in rural communities and small towns is to be published early in 1933 under the joint authorship of John Dayton Willard and Benson Y. Landis.

The Massachusetts Commission on the Enrichment of Adult Life, a branch of the National Commission of the National Education Association, has made a preliminary survey of adult education facilities available in Massachusetts. In this work the Commission was assisted by the Prospect Union Educational Exchange of Cambridge, and the two bodies joined in the preparation and publication of a report of the survey, which it is hoped may stimulate other state commissions to undertake similar studies.

MEETINGS

The American Association for Adult Education held its sixth annual meeting in Buffalo in May. The meeting was chiefly distinguished by the successful use of a new discussion technique. Each topic was discussed first in the presence of the entire assemblage by a chairman and a selected group or panel of persons specially qualified by training or experience to speak upon that subject. The panel exchange of opinions and arguments was followed by a general discussion in which the members of the assemblage joined. What has come to be known as the panel discussion method thus provides first for the expression of more or less expert opinions presented from several and often differing points of view, and second for contributions from the thinking and experience of persons who may, in this connection, be regarded as laymen. The method is now being widely used by adult educationalists.

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The National Advisory Council on Radio in Education held its second annual assemblage in Buffalo in May, immediately following the Association meeting.

The National Education Association, at its meeting in Atlantic City in June, presented reports dealing with the activities of the Commissions on the Enrichment of Adult Life and with the many public school projects for the education of the unemployed, which gave adult education a prominent place in the discussions.

American Country Life Association.—"Rural Adult Education" was the main theme chosen for the annual convention of the American Country Life Association held in Wheeling, West Virginia, in October.

The Council of the World Association for Adult Education, with which the American Association is affiliated, held a meeting at Durbuy-sur-Ourthe, Belgium, in August. Several Americans were in attendance.

COLLEGE ACTIVITIES

Alumni Sessions.—Ten or more colleges and universities held special alumni sessions for their former graduates sometime during the academic year 1931-32. The majority of these sessions were arranged to follow the commencement exercises in June, and were held in the college buildings with the regular officers of instruction officiating.

Summer schools for industrial workers were held at Bryn Mawr College, Bryn Mawr, Pennsylvania; Barnard College, New York City; University of Wisconsin at Madison;

and at a small school near Hendersonville, North Carolina. The University of California at Berkeley again conducted a special adult education school, as part of its regular summer session but distinct from the other courses given during the session.

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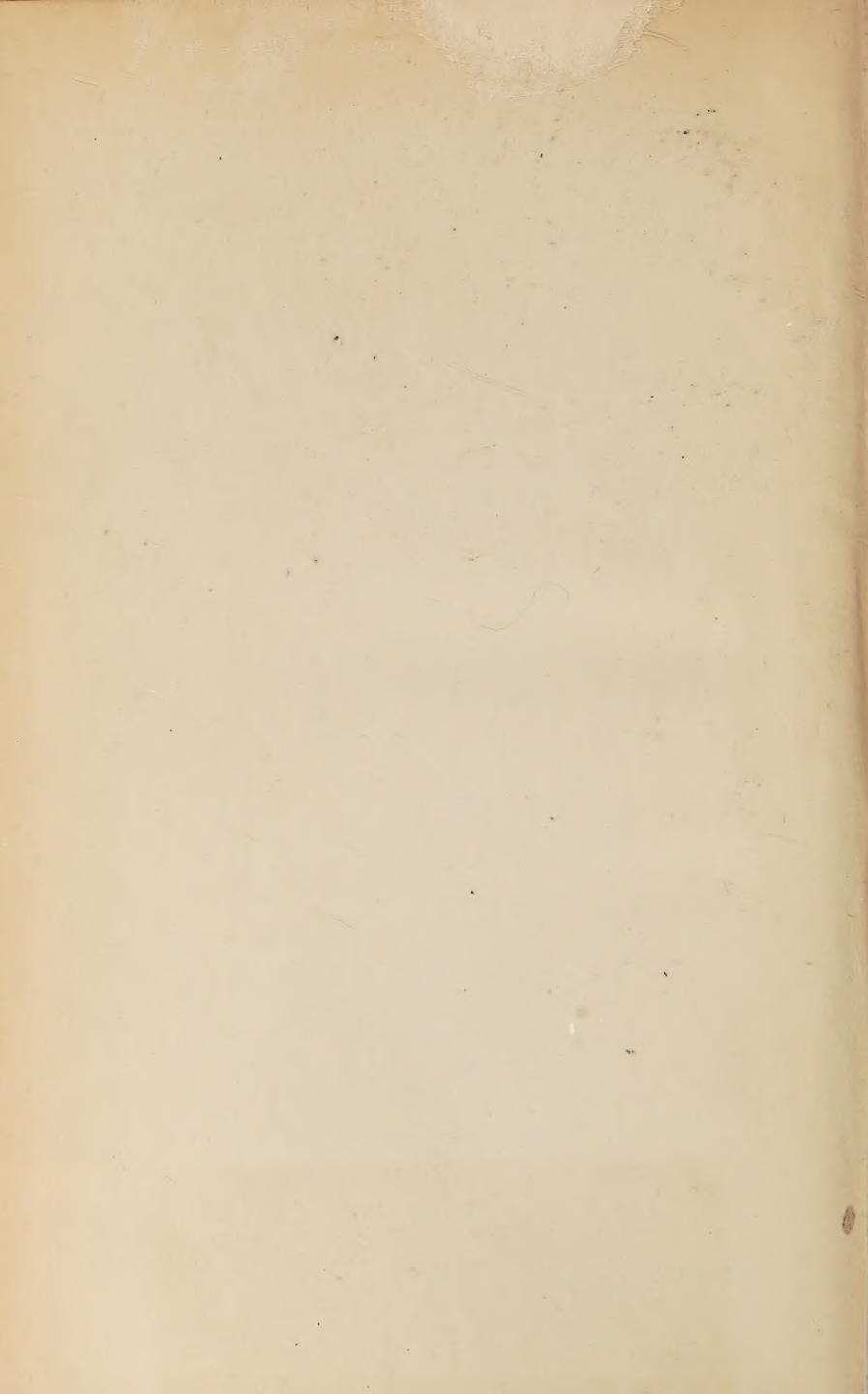
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